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Capabilities of the Soviet General Purpose Forces, 1963-1969

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CAPABILITIES OF THE SOVIET GENERAL PURPOSE FORCES, 1963–1969

THE PROBLEM

To estimate the role and capabilities of Soviet general purpose forces over the next six years, especially against the NATO area in Europe.

FOREWORD

As considered in this estimate, Soviet general purpose forces include: (a) theater forces, i.e., ground combat and tactical air forces plus their associated command, support, and service elements up through the level of military districts and groups of forces; (b) naval general purpose forces, i.e., naval forces subordinate to fleets and separate flotillas, including naval air forces, but excluding strategic attack missile submarine forces; and (c) military airlift and sealift elements. In addition, Soviet command and service elements providing general support to all components of the Soviet military establishment are considered where appropriate. Those Soviet forces which perform other military missions, notably long-range striking forces and air and missile defense forces, are the subject of other National Intelligence Estimates,[1] and are discussed herein only insofar as they might be used in support of theater operations.

It should be emphasized that, in discussing Soviet theater forces and their capabilities, we do not take account of the actions of opposing Western forces. In particular, we do not assess the effect on Soviet theater forces of an initial strategic nuclear exchange. It is obvious that such an exchange would profoundly affect the ability of Soviet theater forces to carry out their assigned missions in a general war.

[1] NIE 11-8-63, "Soviet Capabilities for Strategic Attack," dated 18 October 1963 (TOP SECRET) Restricted Data and Memorandum to Holders of NIE 11-3-62, "Soviet Bloc Air and Missile Defense Capabilities Through Mid-1967," dated 20 November 1963 (TOP SECRET).

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SUMMARY AND CONCLUSIONS

A. Soviet requirements for general purpose forces are the subject of a continuing debate within the Soviet leadership. Russian and Communist traditions alike prescribe the maintenance of large ground forces in being as well as a large mobilization potential. Conservative elements, both military and political, argue that this tradition remains valid, even in the circumstances of a nuclear general war. Khrushchev, however, with some military and political support, stresses the deterrent effect of medium, intermediate, and intercontinental range ballistic missiles and argues that Soviet requirements for general purpose forces are consequently reduced. This debate remains unresolved, but in general the trend in the size of Soviet general purpose forces over the years since Khrushchev came to power has been downward. (*Paras. 1–7, 12, 15*)

B. We estimate that the personnel strength of Soviet general purpose forces now includes 1.6–1.8 million men in theater ground forces, about 400,000 in naval units, and about 150,000 in tactical and military transport aviation. In addition, there are roughly 400,000 men performing command and general support functions for the entire military establishment.[2] General purpose forces are estimated to include: 110–140 line divisions; about 350 torpedo attack and cruise missile submarines; about 180 major surface ships; about 3,400 tactical fighters and light bombers; and about 375 naval jet medium bombers. (*Paras. 15, 18–19, 21, 32, 62–64, 67–68*)

C. The Soviet ground forces are formidable and modern, with a large number of combat strength divisions backed up by a large mobilization potential. All presently existing divisions have been at least nominally converted to one of three types: tank, motorized

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[2] Thus the total manpower in the Soviet military establishment is estimated to be approximately as follows:

Command and General Support		400,000
General Purpose Forces		2,150,000–2,350,000
Ground	(1,600,000–1,800,000)	
Air	(150,000)	
Naval	(400,000)	
Strategic Defense Forces		400,000
Strategic Attack Forces		300,000
Total		3,250,000–3,450,000

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rifle, or airborne. The modernization program has made heavy demands on resources in short supply in the USSR, and we believe that Soviet ground force capabilities are still adversely affected by quantitative and qualitative deficiencies in equipment. (*Paras. 8–10, 22–25, 39–40, 42–43*)

D. During the past several years, the Soviets have reduced the total number of their divisions and have also reduced the proportion maintained at high levels of combat readiness. We estimate that 60–75 Soviet divisions are now maintained at combat strength, i.e., at 85 percent or more of total authorized wartime personnel strength. The remainder are at either reduced strength (60–70 percent of authorized personnel) or at cadre strength (25 percent or less). Even at full wartime strength, Soviet divisions are considerably smaller than US divisions. The authorized wartime strength of tank divisions is about 9,000 men, and of motorized rifle divisions, about 11,000. Most divisions are organized into armies, which are also quite small by US standards. The non-divisional combat and service support elements presently maintained are probably considerably short of wartime requirements. (*Paras. 8–10, 15–17, 22–28, 37–40, 42–43*)

E. Currently there are 22 combat strength Soviet divisions and about 1,200 Soviet tactical aircraft in East Germany and Poland. Without prior buildup, this force could launch a limited objective attack, designed to maximize the chance of achieving surprise. We believe, however, that the Soviets would seek to assemble a considerably larger striking force if they intended to launch a campaign against Western Europe. Reinforcements could be drawn from western USSR and from the Satellite forces. We estimate that *under noncombat conditions* a 50–60 division striking force, including some 5–15 Satellite divisions, could be assembled and organized for operations against Western Europe within about 30 days after a Soviet decision to do so.[3] In addition, such a force might include some 2,000 tactical aircraft and

[3] In terms of manpower, these divisions and their support would include:

Soviet ground troops normally stationed in East Germany and Poland	330,000
Soviet ground troops from Western USSR	480,000
Satellite ground troops	100,000–300,000
Total	910,000–1,110,000

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be backed up by a theater reserve of ground units. The Soviets would not expect to reinforce on such a scale without detection. (*Paras. 91–94*)

F. In recent years, Soviet theater forces have acquired important tactical missile capabilities, including unguided rockets and ballistic and cruise missiles. Nuclear and toxic chemical bombs and warheads have been provided for tactical use; we believe that their release is kept under strict political control. (*Paras. 14, 33–36, 49–55*)

G. With the provision of tactical and air defense missiles for the support of theater forces, the strength of Tactical Aviation was sharply reduced but has remained fairly stable since 1961. The number of tactical aircraft seems low in relation to the size of the theater ground forces. Moreover, most tactical aircraft are obsolescent. Fighter-bombers have been conspicuously lacking, although such a type is now being introduced. Theater force air defense is limited by the lack of surface-to-air missile systems for low altitude defense and for rapidly moving situations. (*Paras. 31–32, 45–46, 48*)

H. Until recent years, the Soviet Navy has been equipped and trained for a primarily defensive role. Much of the impetus for change has come from the USSR's concern over the threat posed by U.S. carrier task forces and missile submarines. To counter the former forces at sea, the Soviets have introduced cruise missiles carried by bombers and submarines. Soviet antisubmarine warfare capabilities are negligible in open ocean areas and probably will remain quite limited, but capabilities for reconnaissance against carrier task forces have been improved by employment of aircraft of Long Range Aviation. The Soviet submarine force poses an increasing threat to Free World shipping, primarily in the northeastern Atlantic and northwestern Pacific areas. Soviet surface ships are largely dependent upon land-based air cover and their capabilities are correspondingly restricted. (*Paras. 60–61, 70–75, 95, 113*)

I. There are an estimated 940,000 men in the East European Satellite ground forces (excluding Albania). These forces have about 62 divisions at various levels of strength and effectiveness. We believe that about half of these divisions are sufficiently

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manned and equipped for early employment in conjunction with Soviet forces. Their political reliability would remain an uncertain factor in some circumstances. (*Paras. 78–83*)

J. During the past year, the Soviets appear to have modified somewhat their expectation that any major conflict in Europe would either be nuclear from the start or would inevitably escalate. Their recent writings indicate that some thought has been given to the possibility of non-nuclear war in Europe. While Soviet capabilities to conduct non-nuclear warfare remain formidable, efforts to gear their theater forces for nuclear operations have had some adverse effects on conventional capabilities. The USSR's capabilities for limited warfare in areas remote from its borders remain severely limited. (*Paras. 100–104*)

K. For at least the next few years, the size and composition of Soviet general purpose forces will probably be governed by compromises in a continuing debate within Soviet ruling circles rather than by any clearly-defined strategic and political concept. Economic considerations, Sino-Soviet relations, and developments within NATO will be critical factors influencing the future of Soviet theater forces. In our view, the chances are good that the number of personnel and divisions in theater ground forces will decline moderately over the next six years. Modernization of ground, naval, and air general purpose forces will tend to correct current deficiencies. (*Paras. 7, 105–116*)

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DISCUSSION

I. SOVIET POLICY TOWARD GENERAL PURPOSE FORCES

1. Historical, geographical, and political factors have made large-scale land warfare on the Eurasian continent the basic concern of Soviet military doctrine. Except for Long Range Aviation, the Soviets have not visualized independent offensive air operations; in particular, tactical air forces are subordinated to commanders of theater ground forces. Except for the recent development of missile submarines, Soviet naval power has been oriented toward defense of the homeland, support of the ground forces in Eurasian waters, and interdiction of sea lines of communications.

2. Even in the nuclear era, the emphasis on theater warfare persisted in spite of the allocation of major resources to strategic defense and attack forces. So long as Soviet capabilities for strategic nuclear attack remained very limited, the military basis for Soviet policies necessarily rested heavily on war-winning capabilities for theater forces—whatever misgivings there may have been regarding their viability in a general nuclear war. In terms of actual war-fighting capabilities and deterrence of Western military action, the large ground and tactical air forces were, until the late 1950's, the prime element of the Soviet military establishment. Even today, the bulk of the Soviet strategic bomber force, as well as most of the submarine force, is best suited for operations in the Eurasian area.

3. As Soviet capabilities for nuclear/missile attack against both Europe and North America began to emerge in the late 1950's, the first fundamental challenge to the primacy of land warfare in Soviet military doctrine was issued. An intense military debate ensued. Khrushchev and apparently a majority of the political leadership, supported by a minority of the military spokesmen, argued for revision of doctrines and forces in ways appropriate to nuclear/missile warfare. This school of thought was almost certainly influenced by concern for the strains on the Soviet economy resulting from the heavy costs of advanced weapons, new equipment, and manpower for both strategic and theater forces, and the effect of such strains on key nonmilitary programs.

4. Khrushchev has argued that massive standing armies are an obsolete luxury which the Soviet Union can ill afford. In his fullest exposition of military doctrine, in January 1960, and in subsequent public and private statements, he has maintained that the enormous increases in firepower achieved by the introduction of nuclear and missile weapons greatly reduce the need for military manpower. Khrushchev's public position on the relative utility of types of military forces may have been exaggerated in order to maximize the political impact of his arguments at home and abroad, and we have no conclusive indications of how

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far he might actually wish to go in restructuring Soviet forces. Nevertheless, Khrushchev's tendency to deprecate the importance of general purpose forces appears to reflect a calculation that the existence of nuclear weapons can and will deter both sides from initiating war.

5. The military, who are more immediately concerned with developing forces for use in the event deterrence fails, have naturally taken the question of general purpose forces much more seriously. However, they have not been of one mind on the question of the role of theater forces in nuclear war. There has been complex debate over the issue. Some have taken the Khrushchevian or modernist approach with its emphasis on deterrence. Most have argued for a war-winning military capability in both strategic and theater forces, including mass armies ready for immediate employment. Out of the debate, compromise positions on military doctrine were formulated and were published in the open press. These compromises were contradictory and precarious. That they satisfied no school of Soviet military thought became evident through revisions and criticism in the public press.

6. The 1960–1961 cut in the numerical size of Soviet forces, which Khrushchev sponsored, was resisted by the military. The process of reduction had stalled even before Khrushchev announced the augmentation of Soviet forces as a foreign policy move in the 1961 Berlin crisis. In early 1963, when his political position seemed to have weakened, Khrushchev spoke defensively about the primacy of military needs and hinted strongly at increased military spending. Recently, however, Khrushchev has reverted to public advocacy of reductions in both the military budget and the size of the forces.

7. In sum, the development of Soviet general purpose forces since the mid-1950's has not, in our view, resulted from Soviet pursuit of a well-defined concept of the role of these forces in war. In the future, Soviet policy towards these and other types of forces will continue to be shaped, not only by a variety of strategic, historical, technical, economic, and political factors, but also by differing views about the relative importance of these factors and by shifting compromises among these views. The fluctuations in this ongoing debate rather than a single, clearly-defined strategic concept are likely to govern the size and composition of Soviet general purpose forces through the period of this estimate.

II. SOVIET THEATER FORCES

A. Past Trends in Development

Reorganization and Modernization of Ground Forces

8. The Soviets have pursued an ambitious program to convert World War II rifle, horse cavalry, tank, and mechanized divisions into highly mobile, heavily armored units. The modernization of the huge, rela-

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tively unsophisticated ground forces was an enormous undertaking. It made heavy demands on motor vehicles, electronic equipment, and skilled personnel, all of which were in short supply in the USSR. Concurrently with the modernization of the Soviet theater forces, the European Satellite armies were organized and equipped from the ground up. In addition, the Soviets also equipped Asian Communist forces with large quantities of materiel, including that expended in the Korean War.

9. We believe that all Soviet line divisions are now at least nominally constituted as modern tank, motorized rifle, and airborne units, although we doubt that the process of reorganization and re-equipping has been completed in all cases. Moreover, it is evident that there were improvisations along the way. Some equipment adopted as standard was far short of desired military specifications. For instance, the original armored personnel carriers were general purpose trucks with light armor added. Most armored personnel carriers presently in service lack overhead cover, and, being wheeled rather than tracked, have poor cross-country mobility.

10. In order to provide combat support to the modernized ground elements, the Soviets required artillery with greater mobility, more and better engineer support, much better communications, modern tactical aviation, and a mobile field army air defense system. As the ground forces were progressively converted, their ability to conduct operations with a minimum of logistic support supplemented by field improvisation was diminished. In particular, requirements for fuels, lubricants, and maintenance for the vastly greater number of vehicles increased sharply. The Soviets apparently paid less attention to providing the modernized support structure required for the theater forces than to reorganizing and re-equipping the line units.

Tactical Air and Missile Support

11. The emphasis given strategic defense of the USSR against bomber attack in the late 1940's and early 1950's has had a considerable influence on developments in Soviet tactical aviation. The Soviet program during those years to develop and produce jet interceptors was very large, but all models were short-range types and fighter-bombers with offensive capabilities comparable to those in Western tactical air forces never appeared. Tactical air units were equipped with the same interceptors that were provided to strategic air defense units, despite their poor characteristics for ground attack missions. On the other hand, during the years 1949 to 1957 a large number of first generation jet light bombers (BEAGLE) were produced for strike and reconnaissance roles within theater forces.

12. During 1960–1961, the total number of jet fighters and light bombers in tactical aviation was reduced to less than half of its prior

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strength. The sharpest reductions resulted from the deactivation of aging BEAGLEs, probably due in large part to a Soviet decision to rely heavily on missile strikes, including MRBMs and IRBMs, in nuclear war. There was also a reduction in fighter strength, probably due in large part to increased reliance on surface-to-air missiles introduced during the same period for air defense of the homeland and of field forces. Since 1961, the number of combat aircraft in tactical aviation has remained fairly stable.

13. The changes in tactical aviation were accompanied, and in part caused, by the advent of missile systems for the tactical support of ground force operations. Since the end of World War II, the Soviets have developed several types of short-range unguided rockets and ballistic and cruise-type missiles for field use. Early generation ballistic missiles included a Soviet version of the German V–2 and a Soviet-designed follow-on system with about twice its range. Both of these systems had low mobility and slow reaction times. We think they were probably not deployed in large numbers and that, in any event, they have now been superseded.

14. Since about 1957, the highly mobile SCUD 150 n.m. ballistic missile system has been available to ground force units. Deployment in strength to Soviet forces in East Europe and western USSR was probably accomplished by about 1961. More recently, the SHADDOCK, a truck-mounted 300 n.m. cruise missile system, has been introduced. We believe that the SCUD and SHADDOCK are the principal surface-to-surface missiles (other than unguided rockets) now in service with Soviet theater forces. Their increasing availability provides the theater forces with important missile delivery capabilities for high explosive, toxic chemical, and nuclear warheads.

Personnel Strengths

15. During the Korean conflict the number of men in the Soviet theater forces reached a post-World War II high of roughly four million. By the late 1950's, this strength had been reduced to roughly two million. As the net result of changes that have occurred since 1959, the theater forces have been further reduced to a level which we estimate is within the range of 1.7 to 1.9 million at present.[4] We believe that numerous line divisions and tactical air units have been deactivated over the years, but that the reduction in the number of line divisions has not been proportionate to the personnel reductions. There is evidence

[4] "These numbers include 1.6–1.8 million in theater ground forces and about 100,000 in Tactical Aviation. They exclude roughly 400,000 general command and support personnel, most of whom have been included in previous estimates as part of theater forces. These personnel support all elements of the Soviet military establishment." See Annex A, Table 1.

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that in many cases the Soviets elected to cut manning levels within divisions, thus reducing the proportion of divisions maintained at combat strength. A low ratio of nondivisional support units to divisions has continued despite the growing logistic and maintenance requirements of a more mechanized army.

B. Current Size and Composition

Manning Levels of Divisions

16. There is little direct evidence on which to base an estimate of the actual personnel strengths of Soviet divisions. From a variety of reliable sources, including classified Soviet documents, we do know that there are three general categories of divisions. The differences between these categories are measured most conveniently in terms of the percentage of authorized personnel strength normally maintained in peacetime. These differences, however, reflect a more fundamental element of Soviet planning for mobilization in the event of general war or a threat of general war. Much of this planning is designed to mount and sustain large-scale operations against powerful NATO forces in Europe. The Soviets evidently anticipate that some divisions would need to be ready for combat on short notice, others would constitute reinforcements for initial or very early operations, and still others would comprise a longer term mobilization base. This planning, moreover, implies that the required combat effectiveness of divisions would vary depending upon such factors as the time of their availability for commitment to battle, the tasks they would be expected to perform, and the effectiveness of the enemy forces they would face when committed.

17. Considering the fragmentary direct evidence on division manning levels, limited evidence as to the total manpower available in the ground forces, and the apparent basic structure of these forces, we estimate that the three categories of Soviet line divisions have the following general characteristics:

a. *Category I* or combat strength divisions are probably manned at 85 percent or more of authorized wartime strength. They are ready for commitment to combat with little or no augmentation. They are intended to form the backbone of first-echelon striking forces against powerful enemy forces. They would have the highest combat effectiveness of any Soviet divisions when committed.

b. *Category II* or reduced strength divisions are probably manned at 60–70 percent of authorized wartime strength. They could probably be fleshed out with reservists and ready to move to a theater of operations within about a week or so. They are intended, therefore, to comprise reinforcements for early combat operations by Category I divisions.

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Their greatest usefulness would probably be as second-echelon or theater reserve units.

c. *Category III* or cadre strength divisions are probably manned at 25 percent or less of authorized wartime strength, containing most of their officer and NCO complements but few troops. They are intended to comprise a longer term mobilization base. They could probably be fleshed out with reservists within a week or so, but they would probably not be suitable as reinforcements or replacements for operations against powerful enemy forces for a matter of months. After several weeks, however, they could probably be useful for mopping-up operations, line-of-communications duties, or reconstruction work.

Number of Divisions

18. We have conducted a thorough review of all evidence bearing on the number of Soviet divisions, their distribution by type, and their geographic location. As part of this review we have made a detailed assessment of 174 entities, each of which might be considered to be a division on the basis of some kind of evidence, and have made judgments as to which were firmly identified and which should be regarded with lesser degrees of assurance. We have also considered the number of divisions likely to be associated with the corps and army structure of the Soviet ground forces. Finally, we have calculated the probable number of existing divisions taking into account the varying degrees of uncertainty about individual organizations. From the results of these complementary forms of analysis, we conclude that the present number of division-level organizations in the Soviet ground forces almost certainly falls within the range of 110–140.[5]

19. Considering the evidence available, we believe that no single number within the 110–140 range estimated above is more likely than any other to be the actual total number of Soviet divisions. However, in order to discuss the probable distribution of Soviet divisions by type and location, we have had to employ the only form of analysis suitable for this purpose—the assessment of individual entities. This form of analysis produces a single number, 139, as the total number of entities rated as firm, highly probable, or probable divisions, excluding those rated as only possible. While using the results of this analysis in the following paragraphs and in our tables as a matter of convenience, we emphasize that the total number, 139, is no more probable than any other in the 110–140 range. It should be noted that an assumption that the total number of Soviet divisions is on the high side of the

[5] This range is 10 divisions lower than the range estimated in NIE 11-14-62, "Capabilities of the Soviet Theater Forces," dated 5 December 1962, SECRET. The change results from re-evaluation and should not be taken to mean that the USSR has reduced its forces by this amount in the past year.

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110–140 range would imply greater requirements for equipment and nondivisional support, and so would tend to maximize any Soviet deficiencies in those respects.

20. Our analysis indicates that the probable number of divisions maintained at the highest peacetime manning level, i.e., Category I or combat strength divisions, fall within the range of 60–75.[6] In the remainder of this estimate, to discuss the probable distribution by type and location, we use the figure 75, a number which is appropriate only if the total number of divisions is 139. It should be noted that this procedure maximizes the immediate Soviet threat in the event of war, but it also maximizes the time required to bring additional divisions to combat readiness, since most of the remaining 64 divisions would be at cadre strength if, within a given total number of personnel, 75 divisions were maintained at high strength.

21. The assurance regarding the identification of the 139 divisions included in this estimate varies markedly with their location. Of this total, 76 individual organizations are considered firmly and currently established as divisions (in one or another of the three Categories), and 59 of these 76 are in areas west of the Urals. The divisions in Eastern Europe are firmly identified; most of those in western USSR are firmly identified or highly probable; those in more remote areas are much less certain. Our evidence also leads us to believe that divisions in Eastern Europe and western USSR are generally at higher manning levels than divisions deep within the USSR. Thus, the uncertainty represented by the range 110–140 involves primarily low strength divisions located in areas remote from NATO, and does not significantly affect immediate capabilities against NATO.

Types of Divisions

22. The Soviets have three types of line divisions: motorized rifle, tank, and airborne. Even at wartime strength, all types of Soviet divisions are considerably smaller than US divisions. Further, they are much lighter in divisional logistic support and some types of combat support. Since the publication of NIE 11-14-62, we have acquired evidence leading us to believe that in about 1960 the Soviets reduced the authorized wartime personnel strength of divisions by as much as 20 percent, together with some reductions in combat vehicles and artillery. At the same time, new armaments were authorized for divisions, such as anti-tank missiles, FROG[7] launchers, and new combat vehicles.

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[6] This compares with the figure 80 estimated in NIE 11-14-62. In that estimate, we made no attempt to arrive at a range of uncertainty. As in the case of the total number of divisions, the change results from re-evaluation.

[7] Similar to US HONEST JOHN.

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23. Motorized rifle divisions are the most numerous of the types in the Soviet (and Satellite) ground forces; the 139 Soviet divisions cited above include 87 motorized rifle divisions, 37 of them at combat strength.[8] In the course of the postwar evolution of the Soviet ground forces this type of division was developed as a more compact version of earlier mechanized divisions. The authorized personnel strength of the motorized rifle division has been gradually reduced. There has been a general trend to increase its armor and mobility in order to adapt it to the combined arms tactics and fast rates of advance advocated in Soviet doctrine for the nuclear battlefield. It is almost certain that a significant proportion of the motorized rifle divisions are not yet fully equipped according to the latest tables of organization and equipment (TOEs).

24. Tank divisions have also evolved from World War II types. The tank divisions are small and light in infantry troops when compared to US armored divisions.[8] In some tank divisions one of the three organic tank regiments is equipped with heavy rather than medium tanks, but there is some evidence that heavy tanks are being phased out and replaced with mediums. In our recent review of evidence, we have concluded that 11 divisions which we formerly identified as motorized rifle or older mechanized divisions are probably tank divisions.[9] The 139 Soviet divisions cited above include 45 tank divisions, 31 of them at combat strength. As in the case of the motorized rifle divisions, tank divisions are not yet fully equipped according to the latest TOE.

25. Less evidence is available on the organization and strength of Soviet airborne divisions than on other types. The division is probably similar to a motorized rifle division, but without heavier items of equipment such as tanks and larger artillery pieces. The number of airborne divisions has declined over the past few years from ten to seven. They are all believed to be at combat strength.

Ground Armies

26. Most Soviet divisions are organized into combined arms armies or tank armies, which contain the bulk of the combat and service support for the divisions. The composition of a Soviet ground army in wartime would vary depending upon such factors as terrain and mission. Evidence from Soviet exercises and classified military writings shows that the Soviets usually assume that a wartime ground army will contain four or five divisions. In this estimate, we consider this to

[8] The motorized rifle and tank divisions at authorized wartime strength are believed to have about 11,000 and 9,000 men respectively. See Annex C, Tables 1 and 2 for TOEs.

[9] These were carried as motorized rifle divisions in NIE 11-14-62.

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represent the size of a typical Soviet army, recognizing that many variations are possible.

27. Our evidence indicates that about 22 or 23 armies now exist in the Soviet ground forces. These armies are much smaller than the image often invoked by the term "army," not only because of the relatively small size of their divisions but also because of their paucity of combat and service support elements. Supporting artillery, missile, and antiaircraft artillery brigades and regiments are either allocated to armies or retained under higher command headquarters. In addition to the armies, there is evidence that five to seven corps still exist, and we believe that these serve, in effect, as small armies.

28. In the event of general war most of these armies would probably be grouped into *fronts*. The Soviet wartime *front* is an echelon roughly comparable to a Western army group.[10] The Group of Soviet Forces, Germany (GSFG), which can be regarded as a *front*, contains four combined arms armies and two tank armies.[11] While we have not identified every army in the USSR as to type, there appears to be a similar ratio of two combined arms armies to one tank army throughout the ground forces.

29. A typical Soviet combined arms army (CAA)[12] in wartime could be composed of one tank division and four motorized rifle divisions with organic army combat and service support troops. We believe that the wartime personnel strength of such a CAA would be about 76,000. The present strength of the four CAAs in GSFG, however, is estimated to vary from 35,000 to 50,000. This lower strength is due in part to the fact that these armies contain 3 or 4 rather than 5 divisions, but probably also to their having an even smaller support structure than that estimated for the wartime CAA.

30. Soviet tank armies[13] usually contain only tank divisions. We believe that a typical tank army would be composed of four divisions, although at present the two tank armies in GSFG contain only three divisions each. The estimated personnel strength of a typical wartime tank army would be about 53,000, whereas the two tank armies in GSFG are estimated to contain about 35,000 troops each. The reasons for this difference are probably basically the same as in the case of the combined arms army. Soviet tank armies probably contain a SCUD missile brigade, but no other nondivisional field artillery.

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[10] See Annex C, Table 5 for illustrative organization of a wartime *front*.

[11] See Annex A, Table 2 for estimated composition of GSFG.

[12] See Annex C, Table 3 for illustrative organization of a wartime CAA.

[13] See Annex C, Table 4 for illustrative organization of a wartime tank army.

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Tactical Air and Missile Support [14]

31. Soviet doctrine calls for a tactical air army (TAA) to support major ground commands, generally at a ratio of one TAA per *front* of four or five ground armies. The size and composition of the 10 identified tactical air armies varies considerably. With the exception of the 24th TAA in GSFG, which has about 900 combat aircraft, these units range in aircraft strength from about 125 to 350.

32. Since the reduction of Tactical Aviation a few years ago, it has been generally stabilized in overall aircraft strength, with phasing in of new model aircraft and continuing retirement of older models. There are currently about 3,400 combat aircraft in Tactical Aviation, comprising about 2,800 fighters and 600 light bombers, including reconnaissance aircraft of both types.[15] About half this total strength is with Soviet forces in Eastern Europe, and most of the remainder is in western and southern USSR.

33. Soviet tactical missile support includes free rocket (FROG) launchers with ranges up to 26 n.m. These launchers are mounted on a light tank chassis. Sightings of these weapons with Soviet units have been rare, but we estimate that at least the Category I divisions probably now have a FROG battalion with two launchers.

34. The SS–1 tactical ballistic missile (SCUD) is found at both army, and higher echelons. The SCUD is mounted on a heavy tank chassis which gives it cross-country mobility, and it employs storable liquid fuel. The latest model has a maximum range of 150 n.m. with HE, CW, or nuclear warheads; earlier models, probably still in service, have this range with HE or CW warheads, but only about half the range with nuclear warheads. A few SS–1 missiles have been sighted in GSFG, but direct evidence of the extent of deployment is not available. The missile system has been operational for several years, however, and, on the basis of its probable assignment to field army and higher echelons, we estimate that about 210–240 SS–1 launchers in 35–40 six-launcher brigades exist.

35. The Soviets have shown a growing interest in cruise missiles for tactical use. The principal cruise missile now employed in support of theater forces is the road-mobile SSC–1 (SHADDOCK), which can deliver nuclear or CW warheads to a range of 300 n.m. The missile employs a low altitude flight profile and flies at a low supersonic speed. It may have replaced the 350 n.m. SS–2 (SIBLING) ballistic missile as a *front* weapons system. The evidence is equivocal as to whether SHADDOCK units are assigned to tactical air armies or to

[14] See Annex B, Table 1 for tactical missile characteristics.

[15] See Annex A, Table 5 for numbers and location.

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separate *front* artillery formations, or to both. Our knowledge of the extent of deployment of SHADDOCK is even poorer than that available on SCUD, but on the basis of the same general considerations, we estimate a present force level of some 50–60 launchers, the majority of them in western border areas of the USSR.

36. We believe that over the past year or so, the quantity of tactical guided missile launchers in theater forces has remained relatively stable at some 250–300, while quality has improved with the introduction of improved missile systems. Although nuclear warheads are probably the primary armament for these missiles, there is some evidence that CW warheads were provided for a relatively high percentage (about half). This proportion is probably declining as nuclear warheads become increasingly available. High explosive warheads are probably also available.

C. Current Strengths and Weaknesses

37. Soviet ground forces include a large number of line divisions which can be readied for combat on short notice, backed up by others constituting a large mobilization potential. The ready force is generally equipped with modern materiel, is highly mobile, and is designed for effective employment in a nuclear environment. The troops are well trained, highly disciplined, and have great endurance. Soviet conscripts are called up for three years or longer depending on their branch of service and this system results in a fairly stable personnel structure for theater forces. Soviet forces are at peak efficiency in late summer and early fall. However, a decline in combat readiness occurs with a one-third turnover in lower ranks later in the fall of the year. The Soviets have recognized the need to avoid fluctuations in readiness and are attempting to spread the induction of new recruits more evenly through the year.

Nondivisional Support

38. Our evidence on nondivisional supporting elements is even more fragmentary than that available on divisions. However, in view of the increased requirements of the modernized Soviet ground forces, the percentage of personnel in nondivisional elements appears austere. If there are in fact 139 divisions, 75 of them in Category I, then the total number of personnel in theater ground forces assigned to nondivisional logistic and service support may now be as small as about 200,000.[16] It seems likely that Soviet forces in East Europe and western USSR have more nondivisional support than those deep in the interior, but examples of austere support for major units can be found even in GSFG, where headquarters and service support elements probably account for no

[16] See Annex A, Table 1.

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more than 10 percent of the total strength in each of the combined arms armies. Based on the fragmentary data available, we think that the number of nondivisional support personnel normally maintained in peacetime is likely to be somewhat less than half of the wartime requirement for a 139-division force.

Status of the Re-equipment Program

39. The program of modernization and reorganization has involved the introduction in recent years of more advanced designs of many types of equipment, including many types of missiles and improved combat vehicles. In most instances, successive generations of equipment have been produced since World War II. Although Soviet ground forces are not fully equipped with materiel of the later designs, many older models still in service remain generally effective. Despite the introduction of several more advanced models of tanks, it appears that some 10 percent of the medium tanks in GSFG are World War II-type T–34's. In certain key categories of equipment, such as armored personnel carriers, general purpose trucks, and POL transporters, there are good indications that Soviet forces are short of total wartime TOE requirements. Authoritative Soviet military spokesmen have alluded to equipment deficiencies and problems of obsolescence.

40. Our evidence is fragmentary and inconclusive as to total Soviet production and total inventories of ground force equipment.[17] In previous estimates we presented inventory figures based on this evidence and on calculated Soviet requirements, but we now consider that such figures have insufficient validity to be included in an estimate. We are currently re-evaluating the evidence in an effort to arrive at probable ranges of uncertainty in total equipment inventories. Pending completion of this re-evaluation, the evidence does seem clearly to support the belief that there are shortages of at least the types of equipment mentioned above.

Mobilization Potential

41. The Soviets have available a large pool of trained reservists to fill out existing units and mobilize additional units. About 500,000 trained ground force personnel enter the reserve force yearly, not counting those in home air defense forces. Most of the personnel released from the active force over the past five years or so were probably trained

[17] In many cases, the evidence is so incomplete that widely varying estimates can be derived from it, depending on the assumptions made. For example, the available evidence supports a firm conclusion that a minimum of 10,000 T–54 tanks have been produced. The number is almost certainly larger than that. On the basis of certain assumptions, the available evidence can support an inventory figure of more than 40,000.

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with the more modern equipment and in current Soviet tactics. Enough of these personnel are available as reservists to provide the additional men required to fill out a theater ground force of 139 divisions and their associated nondivisional support.

42. As indicated in previous paragraphs, our information on Soviet equipment inventories is not good enough to support a confident judgment about the adequacy with which 139 divisions could be equipped in the event of mobilization. In general, we believe that Category I and II divisions probably have nearly full complements of equipment, excepting only certain newer items. Whatever quantity of equipment is available for Category III divisions, it is probably not as up-to-date as that of the higher categories.

43. Should the Soviets choose to do so, additional divisions could be formed by detaching cadres from existing divisions and calling up trained reservists. There are probably sufficient inventories of some types of equipment to allow for mobilization beyond a 139-division force, but shortages would make themselves felt even more severely if the Soviets attempted such an expansion. Moreover, it is doubtful that all of the necessary additional combat and service elements could be mobilized at the same rate as divisions. Such a mobilization of additional divisions would involve the loss of greater and more immediate capabilities which could be achieved through fleshing out a 139-division force.

44. Almost all Soviet aircraft and ships are maintained in active status. Naval and air reservists would probably be mobilized to bring existing units up to full wartime personnel complements. We would expect no significant increase in the operational inventory of ships and aircraft as a result of mobilization, but supporting elements would probably be expanded.

Tactical Air and Missile Support

45. Soviet Tactical Aviation is currently characterized by a low number of aircraft relative to the size of the theater ground forces, limited offensive capabilities, and the obsolescence of the force. The Soviets are reducing deficiencies in Tactical Aviation through the introduction of improved aircraft and armament, as well as increased training emphasis on ground support missions. The obsolescent BEAGLE (IL–28) light bomber is still the mainstay of Soviet offensive tactical air support, but appears now to be phasing out in favor of FIREBAR A, a new supersonic jet light bomber, which has entered service in small numbers. Some FIREBAR A's have radar bombing equipment.

46. Most current Soviet fighters were designed primarily as interceptors and therefore have poor load-carrying and range capabilities

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for offensive missions.[18] About 70 percent of the tactical fighters are obsolescent FAGOTs, FRESCOs, and FARMERs. However, even with their limitations, Soviet fighters can perform a variety of missions in support of ground forces and can be equipped to deliver nuclear bombs. Some of the newer fighters (FITTER and FISHBED C), although they were also basically designed as interceptors, have improved characteristics over the older models for offensive missions. The number of new generation fighters in Tactical Aviation has increased from 25 percent of the total inventory to 30 percent over the past year.

47. Soviet tactical missiles, particularly the FROGs and SCUDs (SS–1), have good mobility and appear rugged and simple in design. However, some classified Soviet articles have criticized the inability of tactical missile units to maintain continuous fire support because of the time required to displace them to new firing positions. These articles reflected the desire of Soviet theater ground force officers to have MRBMs allocated to their operational control, but their proposals were evidently rejected.

Theater Force Air Defense Capabilities

48. Despite increasing numbers of surface-to-air missiles, Soviet theater force air defenses still rely primarily on automatic antiaircraft weapons (57mm and smaller) and tactical aircraft. The introduction of nearly 200 new FISHBED D interceptors into Soviet tactical air units (including over 100 in East Germany) has significantly increased air defense capabilities. SA–2 missile units are now believed to be assigned to armies and higher echelons, but because of displacement time and lack of low altitude capabilities, this system has only limited effectiveness in a rapidly moving situation. The automatic antiaircraft weapons currently constitute the only defenses mobile enough to provide continuous air defense for troops when fighter cover is not available, and the effectiveness of these weapons against modern high performance aircraft is minimal.

Tactical Nuclear Capabilities

49. Nuclear weapons appear not to be physically located with field forces in peacetime. As far as we can determine, they are stored in Ministry of Defense depots located within the USSR, although there is some evidence, which we have not been able to confirm, [redacted] in East Germany. Special units of KGB (Committee of State Security) troops have been created to maintain custody of nuclear weapons, not only in storage, but also during transportation to firing units. Once their use was authorized by national leadership, 1.5(c) 3.4(b)(1)

[18] See Annex B, Table 3 for estimated close support capabilities of tactical aircraft.

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tactical nuclear weapons would be delivered to firing units by the special KGB units.

50. Command and allocation lines of authority for the use of nuclear weapons run from the High Command to commanders of *fronts* and, in some cases, armies. These procedures give the national leadership substantial control over the numbers and yields of weapons employed in major theaters. Allocations within the theater are governed by established guidelines which limit the freedom of field commanders to select targets. The entire system of command and control appears well designed to reserve to the national leadership the decision to initiate use of nuclear weapons.

51. The broad range of nuclear tests in 1961 and 1962 points to an effort to improve the nuclear capabilities of all arms of the Soviet military establishment. The numbers of nuclear weapons available to the Soviet theater forces have probably been limited by higher priorities afforded the strategic attack forces. Nevertheless, we believe that a variety of tactical nuclear weapons is now available, virtually all of them with yields in the kiloton range, but possibly including some in the low megaton range. The Soviets are probably developing subkiloton warheads, but there is no present evidence that they are developing delivery systems specifically for such weapons.

52. Classified documents indicate that Soviet military planners for the past few years have been in a position to think in terms of committing up to a few hundred nuclear weapons in a *front* operation. Initial nuclear strikes are considered crucial to an operation. A high volume of concentrated nuclear strikes is called for prior to offensive thrusts by ground forces, with theater forces expending a large percentage of their nuclear weapons allocations in these strikes. The primary targets in all phases of theater operations remain enemy nuclear delivery systems. To the extent of weapons availability, nuclear strikes would also be directed at command and control complexes, air defense facilities, logistical installations, and major troop formations. We believe, however, that existing procedures, together with deficiencies in logistic support would hamper the Soviets in terms of operational readiness and rapid response in their employment of tactical nuclear weapons. We have no doubt that the Soviets are working to overcome these deficiencies, although we have no evidence on their progress.

Other Supporting Capabilities

53. *Chemical Warfare.*[19] We possess good technical data on the present capability of Soviet theater forces to employ tactical cruise and ballistic missiles and FROGs with toxic chemical warheads. In addi-

[19] For a fuller discussion, see NIE 11-10-63, "Soviet Capabilities and Intentions with Respect to Chemical Warfare," dated 27 December 1963, SECRET.

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tion, chemical bombs and projectiles are available for use with other delivery systems such as tactical aircraft, artillery, mortars, and barrage rockets. Spray systems and land mines have also been developed. Whereas our evidence indicates that missile warheads are bulk-filled exclusively with one of the extremely toxic "V" agents, all other munitions are apparently filled with less toxic nerve agents of the "G" type (sarin or soman) or with agents of older types which first saw use in World War I.

54. Our evidence indicates that Soviet organization, equipment, training, and research and development can support substantial toxic chemical warfare operations. Although some CW munitions are probably immediately available to Soviet tactical units, logistical problems might affect the Soviet's ability to bring their stored CW stocks into play against NATO forces in Europe. About 75 percent of the probable toxic chemical depot storage we have identified is in western and central USSR and about 25 percent in the Far East. Nearly all that in the western and central USSR is located in the Volga and Turkestan Military Districts. It is therefore not well sited for use in a war in the West which began with short warning times and involved heavy interdiction of transportation facilities.

55. We believe that in Soviet thinking the same constraints which apply to the use of nuclear weapons apply also to toxic CW, and that the use of either would require a decision at the highest political level. The present Soviet emphasis on CW munitions for theater operations probably results in part from restricted availability of tactical nuclear weapons due to the longstanding nuclear priority assigned strategic forces. Considering this and other factors, we believe that the Soviet leaders almost certainly would authorize the use of toxic chemical agents by their theater field forces in a general nuclear war. In a non-nuclear war, the Soviets probably would not initiate the use of toxic chemicals.

56. *Biological Warfare.* Intelligence derived from Soviet scientific publications indicates continued interest and research in the field of biological warfare. We have no evidence of current Soviet military capabilities for application to theater operations, however, and we believe Soviet tactical use of BW highly unlikely.

57. *Chemical, Biological, and Radiological Defense.* Soviet military authorities evidently assume that the West would use chemical and biological as well as nuclear weapons in the event of general war. All elements of the Soviet forces stress training for chemical defense. This training, as well as most items of chemical defense equipment, is intended also for defense against radiation and biological warfare agents. Manual and automatic radiation and chemical detection devices are available, but sensitivity of the latter to nerve agents is inadequate to guarantee human safety. An armored personnel carrier has been modi-

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fied for mobile chemical and radiation reconnaissance, but we do not know the sensitivity of the detection systems. The chemical defense equipment supplied the individual combat soldier is adequate to protect him in a toxic environment for only a short time.

58. *Reconnaissance.* While there is little current information on Soviet battlefield surveillance techniques, intelligence available does not suggest that substantial progress has been made in overcoming long-standing Soviet deficiencies in this field. Most Soviet aircraft designated for this mission are obsolescent, although the FLASHLIGHT D, a new tactical reconnaissance aircraft, is now available. In the theater ground forces there are apparently no longer any nondivisional armored reconnaissance units; divisions themselves are expected to perform required ground reconnaissance missions, but their specialized reconnaissance elements are minimal. The reconnaissance equipment in operation is apparently, for the most part, incapable of rapidly providing the ground missile units with accurate fire-adjustment data, automatically processed and transmitted. There are probably still serious organizational impediments in the way of exploitation of collected intelligence. Some Soviet authors have strongly criticized the system of battlefield surveillance available, at least up to 1962, as incapable of fully meeting the requirements of nuclear warfare.

59. *Airlift.* Approximately 185 light transport aircraft of the CAB, COACH and CRATE types and about 380 medium turboprop transports of the CAT, CAMP and CUB types are assigned by Soviet Military Transport Aviation to support of airborne forces.[20] The assigned transport aircraft of the airborne troops are sufficient to airlift a single airborne division in one sortie. The range of the Soviet troop transport aircraft would limit the radius of airborne assault to about 700 n.m. from assembly airfields. The probable addition in the near future of more transports will enhance Soviet capabilities to lift large numbers of troops or cargo to peripheral areas. We believe that in several years transports assigned to support of airborne troops may have twice the present lift capacity, but still to limited ranges.

III. NAVAL GENERAL PURPOSE FORCES

A. Past Trends in Development

60. Until recent years the Soviet Navy was equipped and trained for a primarily defensive role. An intensive postwar shipbuilding program, which reached its peak in 1955, produced a surface fleet including

[20] For estimated characteristics and performance of these and other Soviet transport aircraft, see Annex B, Table 4.

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cruisers, destroyers, and escort ships, which was limited for effective operations to the range of shore-based aircraft. The large Soviet submarine force has been composed, for the most part, of types limited to operations in the northeastern Atlantic and northwestern Pacific waters. However, in the past few years the Soviets have developed an increasingly diversified naval force with a new emphasis on ships, weapons, and equipment of greater range and effectiveness.

61. Much of the impetus for technological change in the Soviet Navy has come from the USSR's concern over the threat posed by US carrier task forces and missile submarines. To counter these forces at sea, the Soviets have introduced medium bombers equipped with air-to-surface missiles, submarines equipped with cruise missiles, new classes of anti-submarine warfare (ASW) ships, and improved weapons and electronic systems. They have also introduced improved attack submarines, both nuclear and diesel. Soviet surface forces have been strengthened by the addition of missile armament to two cruisers and several classes of destroyer and patrol craft, and by the introduction of new mine-warfare ships.[21]

B. Current Size and Composition

Submarine Force [22]

62. Soviet capabilities for conducting operations at long distances from the Soviet coast derive primarily from the submarine force. The total strength of the Soviet submarine force has changed little in the past few years, and we believe that for the period of this estimate it will continue to include about 375–400 first line units. However, with the continued emphasis on missile armament and nuclear propulsion, its capabilities are changing significantly. For example, in 1958, the USSR had only about 20 diesel-powered, torpedo-attack submarines capable of conducting patrols off North American coasts. It now has about 115 nuclear and diesel submarines with this endurance, about half of them armed with missiles.

63. The bulk of the Soviet torpedo-attack submarine force consists of diesel submarines, built for the most part in the 1950's. These include some 174 W class, 19 Z class, 20 R class, and 30 Q class submarines. Since 1958 the Soviets have produced 31 F class diesel submarines and 11 N class nuclear submarines; both of these classes have sufficient endurance to conduct long-range patrols.[23]

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[21] See Annex B, Table 2 for characteristics of Soviet naval missiles.

[22] See Annex A, Table 8 for strength and composition.

[23] See Annex B, Table 6 for submarine characteristics and armament.

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Surface Forces [24]

64. Naval surface forces, which are still heavily dependent upon land-based logistic and air support, appear suited primarily for defensive operations in waters adjacent to the USSR. Conventionally armed major surface units now comprise 14 light cruisers, 85 destroyers, and 62 destroyer escorts. In recent years, however, the Soviet Navy has considerably increased the firepower of its surface forces by the addition of missile armament, including surface-to-air missiles, which has extended the potential scope of effective operations. The only known major surface combatant ships now being built in the USSR are guided missile destroyer types. The Soviets now have operational 14 destroyers armed with cruise-type missiles for use against surface targets. In addition to their missile armament, most of these ships also carry ASW weapons systems. They are probably intended primarily for operations against both naval striking forces and submarines, either in defense of the sea approaches to the USSR or in coastal areas in support of theater field forces.

65. The Soviet auxiliary fleet, composed primarily of older ships, is being augmented by new tankers and cargo ships, and logistic support for submarines is being reinforced by the addition of submarine tenders, rescue ships, repair ships, and missile support ships. Additional logistic support could be provided by the growing Soviet merchant marine. The widespread Soviet fishing fleets could also provide limited support to submarines, and they have considerable utility for training, minewarfare, and collection of intelligence.

Naval Aviation [25]

66. Soviet Naval Aviation underwent a drastic reorganization in 1960 with the deactivation or transfer of all naval fighter units. Naval Aviation is now composed largely of jet medium bombers, but also includes jet light bombers, patrol aircraft, and helicopters. Its capabilities are focused primarily on reconnaissance and strike missions against maritime targets, and to some extent on antisubmarine warfare. Defensive air cover for naval operations would have to be provided by fighter aircraft not subordinate to Naval Aviation.

67. Nearly 300 of Naval Aviation's 365 BADGER jet medium bombers are equipped to deliver antiship air-to-surface missiles. These missiles are of two types: the subsonic AS–1, which has a range of 55 n.m., and the supersonic 100 n.m. AS–2. Both are estimated to have a CEP of 150 feet against single, well-defined ship targets and some of these mis-

[24] See Annex A, Table 8 for strength and composition.

[25] See Annex A, Table 9, for composition and distribution.

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siles probably carry nuclear warheads. Missile-launching BADGERS are either configured to carry two AS–1's or one AS–2.

68. Naval medium bomber strength will probably increase slightly over the next five years. We believe that Naval Aviation has received some supersonic-dash BLINDER medium bombers, and they will probably appear in greater strength within the next few years. Some of these may be equipped with air-to-surface missiles.

69. Most of the naval BADGERs which are not equipped with missiles are assigned to reconnaissance or support roles. Recent evidence indicates an increasing use of medium and heavy bombers of Long Range Aviation on maritime reconnaissance missions; overflights of US carrier task forces also suggest an attack training mission for these aircraft. We believe that the naval requirement for long-range aerial reconnaissance is growing, and that it will be met either by the continued use of Long Range Aviation aircraft in this role, or by the assignment of long-range aircraft to Naval Aviation.

C. Current Strengths and Weaknesses

70. In recent years, the missions of the Soviet Navy have been expanded to encompass strategic missile attack against foreign territory and operations against Western naval forces, while retaining the more traditional roles of interdicting Western sea lines of communication, defending the littoral of the Soviet Bloc, and providing support for the seaward flanks of ground forces. Soviet surface forces operating outside coastal waters would lack air cover, although in certain circumstances SAM-equipped ships may operate beyond the range of land-based air cover.

Against Carrier Task Forces

71. Soviet capabilities against carrier task forces have been improved by continued conversion of jet medium bombers to carry antiship missiles and by the introduction of submarines equipped with cruise-type missiles. In the European area, BADGERs with antiship missiles could operate against surface ships in the northeastern Atlantic, the Norwegian and Barents Seas, and much of the Mediterranean. These capabilities are, of course, subject to problems of target detection and identification. In the past year or so, reconnaissance of open ocean areas by Long Range and Naval Aviation has increased. Submarine operations against carrier task forces could extend to US coastal waters.

Against Sea Lines of Communication

72. The threat of the Soviet submarine fleet to Free World sea lines is greatest in the northeast Atlantic and northwest Pacific. The capability of Soviet submarines to interdict these supply lines would depend

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on a number of factors: endurance of the submarines, transit time to station, repair and overhaul requirements, logistic support, and the extent of opposition. Interdiction operations against North Atlantic supply routes would be undertaken largely by submarines of the Northern Fleet. We estimate that this force includes some 86 torpedo attack submarines whose endurance would limit operations to the Norwegian Sea and eastern Atlantic, as well as eight diesel submarines equipped with antiship cruise missiles.

73. Not considering combat attrition, about 24 Northern Fleet submarines could be maintained on station continuously in the eastern Atlantic approaches to the UK and Europe; this number might be augmented slightly by submarines deployed from the Baltic prior to hostilities. The Soviets could also maintain some 5–10 nuclear and diesel torpedo-attack submarines on more distant stations for operations against shipping in the western Atlantic and in the approaches to the Mediterranean. The number in the western Atlantic could be more than doubled if the Soviets were able to provide logistic support during patrols from a forward base such as Cuba.

74. In the Pacific, the Soviets are estimated to have some 57 torpedo-attack submarines which they could use against sea lines of communication as well as six nuclear and three diesel submarines equipped with antiship missiles. While only one-third of this force has sufficient endurance to operate off the US west coast, the remainder can operate in those areas through which US shipping must pass to support Pacific island bases and Asian allies. The Pacific Fleet now includes six nuclear and three diesel-powered cruise-missile-launching submarines. We believe the Soviets would employ these submarines primarily in an antishipping role, but they could also be employed against land targets. The Soviets could probably maintain some 13–20 submarines on station in the ocean area between Hawaii and Japan, as well as about five off the US Pacific Coast.

ASW Capabilities

75. Since the mid-1950's, the Soviets have made a major effort in the construction of ASW ships, particularly small coastal types, and are testing new helicopters and modified seaplanes. An ASW role may have been assigned to Soviet F and R class submarines, as well as to the nuclear-powered N class. Detection equipment and weapons now in service include air-launched passive sonobuoys, airborne magnetic anomaly detection (MAD) equipment, depth charges, multiple tube ASW rocket launchers, and passive homing torpedoes. ASW exercises have expanded in scope, and training doctrine has become more sophisticated. We believe that the USSR now has the capability to conduct fairly effective ASW operations within 50 miles of a major Soviet naval base against

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a conventional submarine operated by a moderately well-trained crew. Against a conventional submarine with a crew experienced in evasive techniques this capability would be materially degraded, and against a nuclear submarine it would be very poor. Soviet ASW capabilities diminish rapidly as the distance from their naval bases approaches 200 miles, and beyond that distance must still be regarded as negligible.

Sealift

76. The amphibious assault capability of the Soviet Navy is extremely limited. We have re-examined the numbers and characteristics of the ships and craft available to the USSR for shore-to-shore operations; we conclude that very few can be used for assault landings across open beaches, and that these are suitable only for short-distance operations. We now believe that only in the Baltic are there sufficient numbers of appropriately designed ships and craft to lift balanced forces in an amphibious assault. In this area, a maximum of two regiments can be lifted. Token numbers of amphibious ships and craft in other fleet areas could, of course, be used ship-to-shore for logistic support or for small landing operations not requiring assault by balanced forces.

77. The Soviets possess a total merchant ship lift in all seas which is theoretically sufficient to transport approximately 20 motorized rifle divisions; however, such a lift would require port or other extensive off-loading facilities in the landing area. Assuming all Soviet merchant ships were available for use in their respective areas of registry, their approximate lift capability would be:

North Sea	2½	motorized rifle divisions
Baltic Sea	5	motorized rifle divisions
Black Sea	6	motorized rifle divisions
Pacific	7	motorized rifle divisions

IV. CONTRIBUTION OF THE EAST EUROPEAN SATELLITES

A. Warsaw Pact

78. Since May 1955, Soviet and European Satellite forces have been part of a unified military command established under the Warsaw Pact. The headquarters of this command is in Moscow, and its Commander in Chief is a Marshal of the Soviet Union as well as a First Deputy Minister of Defense of the USSR. Satellite defense ministers are designated Deputy Commanders in Chief, but there is no evidence that they regularly participate in the functions of the unified command, which are evidently handled almost exclusively by Soviet staff officers.

79. In wartime, European Satellite military forces would be under the ultimate control of the Soviet High Command, and we believe that

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the Warsaw Pact command as such would have little or no operational role. The manner and extent to which the Soviets plan to employ Satellite forces is probably determined by the Soviet estimate of their reliability and effectiveness, and by the availability of supporting elements. Selected Satellite divisions, corps, and field armies would be integrated directly into Soviet field armies or *fronts*. Others would be retained under national command for offensive missions on secondary fronts, as well as defense against NATO air attack and sabotage, theater reserve, and line-of-communications security.

B. Ground Forces

80. The total personnel strength of the East European ground forces is estimated to be 940,000 (excluding Albania). Of this total, more than half are in the 62 Satellite line divisions.[26] The remainder are in combat and service support units and home air defense forces, as well as general support for the Satellite military establishments. As in the case of Soviet forces in Eastern Europe, our evidence as to the existence of Satellite divisions is relatively good. However, our evidence on organization and equipment, peacetime manning levels, and equipment status varies from good in the case of some divisions to poor in the case of others.

81. The divisions are organized generally along Soviet lines. Some of the equipment for these ground forces is manufactured by the Satellite armaments industries, but the bulk of it is supplied by the Soviets. Those models of ground force equipment which are in widespread use with Soviet units are also on current issue in the Satellites. Items of latest model Soviet equipment have been observed in some East European armies, but these are certainly in even shorter supply in the Satellites than in the USSR. In general, the equipment available to East German divisions and to many Polish and Czechoslovak divisions appears to be nearly comparable to that of GSFG in quality. We believe that 32 of the Satellite divisions are sufficiently manned and equipped to be committed to combat on short notice in conjunction with Soviet forces. Of these divisions we estimate that 8 are Polish, 8 Czechoslovak, 6 East German, 5 Bulgarian, and 5 Rumanian.

C. Tactical Air and Missile Support

82. While the primary mission of Satellite air forces is air defense, fighter units are being trained and equipped to perform ground attack missions as well. These air forces are made up largely of obsolescent aircraft.[27] However, more advanced fighters are being furnished to

[26] For details of location and type, see Annex A, Table 4.

[27] For details of type and location, see Annex A, Table 6.

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the Satellites and we believe this trend will continue. Certain key cities of East Europe are defended by SAMs of the SA–2 type, but the Satellites still depend heavily on their fighter aircraft for air defense. The Satellites have dual capable weapons of various types, but the Soviets are almost certainly unwilling to provide them with nuclear bombs and warheads. There is evidence that SCUD and FROG missiles are being provided to some of the Satellites.

D. Reliability

83. The political reliability of the Satellite forces is still a critical consideration in Soviet planning for their employment. Their utility would vary among units and nationalities, and would further depend on the circumstances, including the cause and nature of the hostilities, and the nationality of the opposing forces. By careful selection of courses of action and missions, the USSR could make effective use of Satellite forces, but it could not count upon them for the full range of operations against NATO.

V. GENERAL WAR CAPABILITIES AGAINST NATO

A. Current Operational Doctrine

84. The Soviets are preparing their theater forces against the contingency of general nuclear war. Soviet military doctrine does not address itself in any depth to the variety of circumstances in which general nuclear war might begin. Although there is increasing attention given to general war resulting from escalation, most Soviet military writings assume that such a war would be initiated by a Western attempt to launch strategic attacks against the Soviet Bloc. In this context, a primary Soviet concern is to ensure that the theater forces would be able to survive the massive employment of nuclear weapons by the enemy and to fight effectively in conjunction with the USSR's own air and missile strikes.

85. During an initial nuclear exchange, the role of theater field forces would be secondary to that of strategic attack and air defense forces, but theater forces would be expected to contribute to initial Soviet offensive and defensive action by engaging the enemy on a broad front and by neutralizing nuclear weapons and bases where possible. The ultimate strategic objectives of Soviet theater operations in general war would be to defeat enemy ground forces and to occupy strategically important territory. The principal operations of Soviet theater forces in general war would be directed against NATO in Europe. Soviet planning evidently calls for moving massive forces rapidly toward the Channel coast in the initial days of such a war.

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86. Soviet operational doctrine recognizes that in the event of general war, NATO's nuclear delivery capability imposes a need for dispersal, mobility, and flexibility in deployment and control of Soviet theater forces. To meet these needs, Soviet operational doctrine calls for the use of armored units as the key element of maneuver, and tactical missiles and rockets with nuclear and CW warheads as the chief elements of firepower. Soviet doctrine also calls for a rapid and continuous rate of advance for ground forces (up to 100 km per day), without the traditional degree of concern for open flanks or by-passed enemy forces.

B. Forces Available for Employment

87. A great many variable factors have decisive bearing on the size of the forces which the Soviets could and would employ in operations against NATO. Some of the most important of these are: (a) the manner in which the conflict arose, i.e., whether suddenly or more gradually; (b) the number of units which would be retained as a mobilization and training base; (c) the extent of employment and the combat effectiveness of Satellite divisions; and (d) force requirements in other areas. We are not certain as to the quantities of weapons and equipment available for mobilization purposes. However, we believe that shortages of some types of combat and support equipment, as well as of trained specialists for support units, would impair the effectiveness of an expanded force.

Ground Forces

88. Soviet theater ground forces are disposed in such a manner that the bulk of their strength is available for use against NATO. Of the 139 [28] divisions whose identification is considered firm, highly probable, or probable, 105 [28] are located west of the Urals. About 65 [28] of these are believed to be in Category I (combat strength), and have probably been given the highest level of support within Soviet ground forces. Our detailed assessment of the types and locations of combat strength Soviet divisions available for employment against NATO is as follows:

Location	MTZ Rifle	Tank	Air-borne	Total
Group of Soviet Forces, Germany (GSFG)	10	10	0	20
Northern Group of Forces, Poland (NGF)	0	2	0	2
Southern Group of Forces, Hungary (SGF)	2	2	0	4
Western USSR	12	9	3	24
Northwest USSR	3	0	1	4
Southwest USSR	3	4	0	7
Southern USSR [29]	2	1	1	4
Total	32	28	5	65 [29]

[28] See paragraphs 17–21 for a discussion of the validity of these numbers.

[29] Excludes four divisions opposite eastern Iran and Afghanistan.

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Air and Missile Support

89. We estimate that Soviet tactical air strength now in East Germany, Poland, and Hungary consists of about 225 jet light bombers and nearly 1,250 fighters.[30] The Satellites (excluding Albania) have about 165 light bombers and about 2,450 fighters, the latter serving primarily air defense functions. In the entire European USSR, there are in Tactical Aviation an additional 275 light bombers and about 1,450 fighters. In addition to the tactical delivery systems available to the Soviet forces in East Europe and those organic to reinforcing Soviet formations, some medium and intermediate range missiles and medium bombers would almost certainly be directed against targets of immediate interest to the theater forces.

Naval Support

90. The units assigned to the three Soviet fleets in the European area are estimated as follows:

Fleets	Torpedo Attack Subs	Ballistic Missile Subs	Cruise Missile Subs	Cruisers	Destroyers and Escorts
Northern	126	39	8	3	50
Baltic	84	0	1	5	33
Black Sea	45	0	1	6	32

Of the forces in the Northern Fleet, with unrestricted access to the open seas, we estimate that there are some 86 torpedo-attack submarines whose armament and endurance makes them best suited for antiship operations in the northeastern Atlantic. The eight cruise missile subs are also available for such missions. The surface ships of the Northern Fleet are capable of operations in the northeastern Atlantic, but their operations would probably be confined to the North, Norwegian, and Barents Seas within the radius of land-based air cover. About 250 BADGER medium bombers, the bulk of them equipped with ASMs, and about 40 MADGE seaplanes are assigned to the three European fleets.

C. Capabilities to Launch Campaigns Against Central Region

Immediately Available Forces

91. The size of the ground and tactical air forces the Soviets could employ initially against the Central Region of NATO would depend in part on whether operations were begun on short notice or after a period of preparation. The Soviets currently have 22 line divisions and about 1,200 tactical aircraft stationed in East Germany and Poland. Without

[30] The figures in this paragraph include reconnaissance aircraft.

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prior buildup, the Soviets could launch a limited objective attack against Western Europe designed to maximize the chance of surprise. Such an action, however, would conflict with Soviet doctrine concerning the necessity for numerical superiority in the area of engagement.

Reinforcement Capabilities

92. Soviet military doctrine and training exercises indicate that, if circumstances permitted, the USSR would seek to assemble a considerably larger striking force for any campaign into Western Europe. Considering current Soviet doctrine for combat organization and echelonment, as well as the geography of the area, we believe that a striking force for such a campaign would probably comprise three *fronts* with a total of 50–60 ground divisions and air support totalling some 2,000 tactical aircraft. Soviet doctrine would also call for some theater reserve forces in Poland and eastern Czechoslovakia.

93. The ground and tactical air forces to accomplish the reinforcement could be drawn from the western military districts of the USSR and from the Satellite forces of East Germany, Poland, and Czechoslovakia. The 24 combat-strength divisions and about 1,000 tactical aircraft in western USSR, as well as 22 of the Satellite divisions, would be the earliest available reinforcements. After some delay, additional divisions could be drawn from lower strength divisions in western USSR, or from northwestern, southwestern, or southern USSR.

94. In arriving at an estimate of Soviet capabilities to augment forces for a campaign into Western Europe, we have considered a number of factors, including the capacity of the East European rail and road networks, the time required to prepare transportation systems to operate at peak efficiency, the confusion factors common to all large military movements, and the problems of organizing divisions and supporting elements into effective armies and *fronts*. Considering all factors, we continue to estimate that, *under noncombat conditions*, a 50–60 division striking force could be assembled in East Germany and western Czechoslovakia and organized for operations against Western Europe within about 30 days after a Soviet decision to do so. Such a force could comprise the 22 Soviet divisions normally stationed in East Germany and Poland, plus 24 combat strength Soviet divisions from the western USSR, plus 5–15 Satellite divisions.[31] In addition, a theater reserve of Czech,

[31] In terms of manpower, these divisions and their support would include:

Soviet ground troops normally stationed in East Germany and Poland	330,000
Soviet ground troops from western USSR	480,000
Satellite ground troops	100,000–300,000
Total	910,000–1,110,000

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Polish, and Soviet Category II divisions could be assembled in eastern Czechoslovakia and Poland. The Soviets would not expect to reinforce on such a scale without detection.

D. Capabilities for Naval Operations Against NATO

95. Long-range torpedo-attack and cruise missile submarines, both nuclear and diesel-powered, could be deployed in the North Atlantic for operations against NATO naval forces, and this would probably be a primary Soviet objective in the initial period of a general war. Those aircraft of Long Range Aviation and Naval Aviation which are equipped with antiship missiles could operate against surface ships in the northeastern Atlantic, the Norwegian and Barents Seas, and much of the Mediterranean. The Soviet ballistic and cruise missile submarines could contribute, in the initial period, to a campaign against western Europe by attacks against important coastal targets. Attacks could also be directed against some inland targets, depending on their location in relation to sea approaches and on the depth and effectiveness of Western coastal ASW defenses. Following the initial phase of a campaign, part of the Soviet submarine fleet could be deployed for operations against sea lines of communication from North America.

E. Capabilities to Launch Campaigns in Other Areas

96. A major drive across central Europe would probably be accompanied by lesser thrusts in other military theaters, employing the ground divisions adjacent to them and the limited numbers of tactical aircraft not committed to the main westward thrust. In the following paragraphs, we canvass Soviet strength available for such campaigns, on the basis of the breakdown of divisions by number, category, and location used in earlier sections of the paper. If the actual number of divisions is toward the low side of our estimate of 110–140 divisions (60–75 in Category I), Soviet forces available for simultaneous campaigns in theaters other than NATO Central Region would be smaller than indicated below.

97. For an initial campaign against Scandinavia, the USSR could use the four combat strength and four understrength divisions facing Finland and northern Norway. The four Soviet divisions in Hungary might form the initial echelon of a *front* moving toward Italy. For a campaign into Greece and Turkish Thrace, the USSR has available seven combat strength divisions in the southwestern USSR and up to five Bulgarian and five Rumanian divisions. Some of the seven Soviet combat strength divisions in the Carpathian Military District, if not sent westward, could also be used in this theater. The position of Yugoslavia as neutral, ally, or enemy would be a key factor influencing the strategy of Soviet campaigns against Italy or Greece and western Turkey.

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98. In the initial stage of a general war, limited operations might be launched against Iran and eastern Turkey. Eight combat strength divisions are stationed in southern USSR facing eastern Turkey and Iran; because of logistic limitations, not all of these divisions could be employed against eastern Turkey.

99. Soviet forces in the Far East number six combat strength and ten understrength divisions, including one airborne division. The Far Eastern forces have no significant capability for amphibious assault, although there is a capability to sealift forces in merchant ships against such areas as Japan, provided that adequate port facilities could be secured. The theater forces in the Soviet Far East have been substantially reduced in recent years, and it is doubtful that in the initial phase of a general war the Soviets would launch a theater campaign in the Far Eastern area. It is possible that additional Soviet theater forces will be moved to the Far East because of an exacerbated Sino-Soviet dispute.

VI. LIMITED WAR CAPABILITIES

A. Non-Nuclear Theater Warfare

100. The Soviets have been especially concerned with developing concepts and capabilities for waging nuclear theater campaigns. This appears to have been in response to a NATO policy which was frankly based on a resort to nuclear weapons from the beginning of hostilities. More recently, the Soviets appear to have modified somewhat their expectations that any major conflict in Europe would either be nuclear from the start or would inevitably escalate. Recent Soviet writings have indicated that some thought has been given to the possibility of non-nuclear warfare in Europe, in view of the US interest in building up NATO conventional capabilities. The Soviets recognize the advantages to them if an engagement in the European theater could be kept non-nuclear, and have stated that a Soviet objective in such a conflict would be to prevent escalation. But they also recognize that the risk of escalation would be very great.

101. While current Soviet capabilities to conduct non-nuclear warfare remain formidable, efforts to gear the theater forces for nuclear operations have had some adverse effects on conventional capabilities, particularly in terms of firepower. The sharp decreases of past years in tactical aviation and tube artillery would hamper the Soviet forces in the conduct of large-scale non-nuclear operations. Further, while we believe that the austerity of combat and service support at all echelons of the ground forces might suffice in the "quick-or-never" context of general nuclear war, it is doubtful that it could support a more protracted conventional conflict without considerable augmentation.

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B. Limited Nuclear Warfare

102. The Soviets have been even more reluctant to admit the possibility that tactical nuclear weapons could be introduced into local war without precipitating escalation to general war. They have evidently not elaborated any doctrine for limited warfare involving the tactical use of nuclear weapons. In May 1963, however, this possible use of nuclear weapons was mentioned for the first time in open Soviet literature. Limited nuclear warfare against NATO would pose acute problems to the Soviets in that their most significant nuclear delivery capability against European theater targets rests with MRBM/IRBM and medium bomber forces whose bases are inside the USSR.

C. Distant Limited Military Operations

103. Soviet theater forces are primarily designed for operations in areas contiguous to the Bloc. In recent years, the USSR has increased its concern with areas remote from its borders, and the Cuban venture shows that it can deploy small ground and air contingents to distant areas and maintain them once deployed. However, the USSR would face many disadvantages in any present attempt to initiate and sustain combat operations in a distant area, or to deploy a large force to such an area. It is severely limited in airlift, sealift, and naval support suitable for distant military operations. Moreover, in many areas it lacks political arrangements to insure that it could provide adequate logistic support.

104. There is no evidence that the USSR has established any special military component trained and equipped specifically for independent small-scale operations, although of course it can employ portions of its existing forces. It is possible that over the next few years the Soviets will seek to improve their capabilities for distant, limited military operations through the designation and training of appropriate forces, and the development of equipment specifically for their use and logistic support. They may attempt to overcome their geographic disadvantage for applying such forces by negotiating with neutralist countries to utilize available facilities for refueling and maintenance of Soviet military aircraft or naval ships.

VII. TRENDS IN GENERAL PURPOSE FORCES TO 1970

A. Ground Forces

105. We believe that debate regarding the proper size of the Soviet ground forces will continue within Soviet ruling circles over the next few years. This debate will be shaped by the conflicting views which are already evident on the appropriate role of these forces in general war. Economic factors will also be a major consideration; even now Khrushchev is evidently pressing anew the case for reducing military manpower

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in order to free resources for higher civilian allocations. Those who support the concept of a large standing army will probably contend, in addition to their customary arguments, that the contingency of non-nuclear war raised by current NATO discussions and the hostility of Communist China are new factors reinforcing their propositions. Within the context of a possible force reduction, or independent of it, there is a possibility that Soviet forces in East Europe will be scaled down, primarily for political effect.

106. Much will depend on the evolution of NATO itself. The Soviets will observe the Western Alliance not only in order to respond to changes in its military capabilities, but also to assess its cohesiveness and determination. NATO's ability to agree upon and implement significant improvements in forces would probably increase the deterrence to Soviet resort to arms, but it would also add to the arguments that the USSR should not reduce its ground forces and should concentrate upon raising their quality.

107. The interaction of these factors over the next six years cannot be wholly foreseen. In our view, however, the chances are good that the number of personnel in theater ground forces will decline over the period. The decline might come about as a result of economic pressures and of repeated compromises in the debate over military doctrine. This process could lead, by 1970, to a theater ground force of about one and one-half million men, that is, a reduction of some 100,000–300,000 from present estimated strength. Such a reduced force might have some 100 to 120 line divisions, about half of them at combat strength.

108. On the other hand, we do not exclude the possibility of reductions along the lines of Khrushchev's 1960 proposals, which implied a theater ground force strength of about one-million men, perhaps backed up by a territorial militia system. Such a drastic reduction would involve basic strategic decisions which the Soviets thus far do not appear willing or ready to make. Considering current indications from Soviet military budgeting, and from the status of the military debate, we believe that current plans for the size of theater ground forces would call for more moderate reductions, such as outlined in the preceding paragraph.

109. Modernization will continue to improve the quality of Soviet ground forces. The extent of improvement, however, will be closely related to trends in total size; the larger the forces which the USSR elects to retain, the more it will have to contend with obsolescence and shortages. If the Soviets decide that they must seriously respond to the contingency of non-nuclear warfare, they will probably provide increased combat support as well as increased service support. Such efforts would reinforce the pressures for a reduction in the number of line divisions.

110. Present trends in the ground weapons development program point to a continuing emphasis on firepower and mobility. Specific areas of

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concentration probably will include improved, more mobile missile weapons to defend against tactical aircraft, increased quantities of the better armored personnel carriers, of T–62 medium tanks with smoothbore guns, and of guided missile antitank weapons. The Soviets may introduce a new light reconnaissance tank to replace the PT–76, which several Soviet military authors have criticized as being undergunned and vulnerable, as well as a new medium tank replacing the main gun with missile weaponry. More and better general purpose vehicles and increased reliance on pipelines will reduce somewhat the Soviet dependence on rail lines for logistic support.

B. Tactical Aviation and Missiles

111. We believe that the Soviets will continue to modernize Tactical Aviation, improving its ground attack capabilities in particular. We expect the rate of modernization to increase over the next few years, and we believe that tactical aircraft with much improved range and payload characteristics will be introduced. We expect a gradual decline in total numbers of tactical aircraft. The numbers of guided missiles in Soviet theater forces will probably remain about constant, but new and improved systems will probably be introduced. It appears likely that additional free rocket launchers will be assigned to divisions.

C. Air and Missile Defense

112. Field force air defense capabilities will improve over the next few years through the modernization of Tactical Aviation and probably through the introduction of the SA–3 or follow-on SAM systems into ground formations. There is considerable evidence that the Soviets have been developing transportable ABM defenses for their field forces, and we believe that such defenses could be operational in 1964. We have no basis for determining the extent to which they may be deployed, but it seems likely that considerable improvement of defenses against aircraft would be a prerequisite to deploying an ABM vulnerable to aircraft attack.

D. Naval Forces

113. We believe that the numerical strength of Soviet surface naval forces will remain fairly stable over the next five years. Soviet production of guided missile destroyers and of smaller specialized craft will probably continue at about present levels. Modernization of destroyers will also continue, and additional surface ships will probably be retrofitted with missile armament. The aircraft strength of Naval Aviation is expected to remain fairly stable with an increased proportion of new models such as BLINDER, MALLOW, and MAIL. As regards missiles, we expect some

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extension of range, either through improvement in missile fuels or design, or by improved target acquisition means, or both.

114. The USSR will continue to improve ASW and anticarrier capabilities, primarily through the application of improved submarines and long-range aircraft to these missions. The effectiveness of surface units at distances beyond the range of land-based fighter cover will probably be strengthened through the addition of SAM armament. Despite these improvements, however, we believe that the capabilities of the Soviet Navy to conduct surface operations in open ocean areas will remain severely limited. In particular, it probably will have only a limited capability to detect, identify, localize, and maintain surveillance on submarines operating in open seas.

115. There is little evidence of the development within the Soviet Navy of a capability to replenish ships on the high seas. However, we believe the Soviets are developing a system for emergency mobile basing of surface ships and submarines in their coastal waters. Mobile bases probably will consist of several small ships for repair, refueling, and replenishment of weapons and supplies. As the period advances, we think a number of such bases will be deployed in protected coves and fiords to provide wider dispersal and thus enhance the survivability of the Soviet base for naval operations.

116. The Soviets may seek to develop their amphibious lift capability, but significant improvement will depend upon their acquisition of additional amphibious craft, extensive training, and development of a reliable logistic support system. There are few current indications of efforts along these lines.

E. Nuclear Weapons

117. Shortage of nuclear weapons for support of theater forces will probably be alleviated by 1970, even if the Soviets allocate priority to air and missile defense warheads. If no such priorities interfered, the Soviets could probably have the numbers of tactical nuclear weapons which they would consider requisite for theater forces within two or three years. Soviet procedures for control and use of tactical weapons, as well as reconnaissance and target acquisition, are likely to improve significantly over the next year or so, particularly should the Soviets come to give more credence to the possibility of limited nuclear warfare.

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ANNEX A

STRENGTH AND COMPOSITION OF SOVIET AND EAST EUROPEAN SATELLITE GENERAL PURPOSE FORCES

TABLES

Table 1: ILLUSTRATIVE BREAKDOWN OF PERSONNEL IN SOVIET GENERAL PURPOSE AND GENERAL SUPPORT FORCES

Table 2: ESTIMATED STRENGTH AND COMPOSITION OF THE GROUP OF SOVIET FORCES, GERMANY

Table 3: ESTIMATED NUMBERS AND DEPLOYMENT OF SOVIET GROUND DIVISIONS AS OF OCTOBER 1963

Table 4: ESTIMATED STRENGTH OF EAST EUROPEAN SATELLITE GROUND FORCES AS OF OCTOBER 1963

Table 5: ESTIMATED STRENGTH OF SOVIET TACTICAL AIRCRAFT BY LOCATION AND TYPE AS OF OCTOBER 1963

Table 6: ESTIMATED STRENGTH OF EAST EUROPEAN SATELLITE AIRCRAFT BY TYPE AS OF OCTOBER 1963

Table 7: ESTIMATED STRENGTH OF SOVIET AND EAST EUROPEAN SATELLITE TACTICAL AIRCRAFT BY TYPE, MID-1964 TO MID-1969

Table 8: ESTIMATED SOVIET NAVAL STRENGTH AND DEPLOYMENT, OCTOBER 1963 TO MID-1969

Table 9: ESTIMATED STRENGTH AND DISPOSITION OF SOVIET NAVAL AVIATION AS OF OCTOBER 1963

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Table 1

ILLUSTRATIVE BREAKDOWN OF PERSONNEL IN SOVIET GENERAL PURPOSE AND GENERAL SUPPORT FORCES

This table is based on a 139-division force with 75 at combat strength. It accounts for the total estimated Soviet military personnel strength less those assigned to strategic attack missions and to air defense of the homeland (PVO). The table represents only one of numerous possible breakdowns of military personnel strength which would be reasonably consistent with the limited evidence available.

1. General Purpose Ground Forces	.....	1,700,000
Category I Divisions [a]	660,000	
Category II and III Divisions [b]	310,000	
Combat Support [c]	480,000	
Service Support [d]	260,000	
2. General Purpose Naval Forces	.....	400,000
Forces Afloat	175,000	
Supporting Shore Establishment [e]	175,000	
Coastal Defense	25,000	
Naval Aviation [f]	25,000	
3. General Purpose Air Forces	.....	150,000
Tactical Aviation [f]	100,000	
Military Transport Aviation [g]	50,000	
TOTAL GENERAL PURPOSE FORCES	.....	2,250,000
4. Command and Service Support [h]	.....	400,000

[a] Assuming 75 divisions averaging 90% of authorized wartime strength.

[b] Assuming 64 divisions averaging 45% of authorized wartime strength.

[c] Assuming a 1 to 2 ratio of personnel in nondivisional combat support units to personnel in divisions, a ratio consistent with evidence on GSFG.

[d] A residual based on a general purpose ground force total of 1.7 million men, the midpoint in our estimate of 1.6 to 1.8. Includes elements up through military districts and groups of forces.

[e] Assuming a 1 to 1 ratio of military personnel in the shore establishment to personnel in forces afloat. Includes elements up through fleet headquarters.

[f] Includes appropriate headquarters, air service detachments, and transport aircraft units.

[g] Includes headquarters and air service detachments. Helicopters, liaison, and utility aircraft, not in other functional elements, are also included.

[h] This entry presents separately general command and service support personnel, many of whom have been included in previous estimates as a part of operational general purpose forces. General command and service support elements back up strategic and air defense forces as well as the general purpose forces. These elements include military personnel performing such functions as Ministry of Defense staff; service schools and preoperational flight training; zone of interior supply, medical, transportation, and construction troops; research, development, test and evaluation personnel; and mobilization and induction staffs.

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Table 2

ESTIMATED STRENGTH AND COMPOSITION OF THE GROUP OF SOVIET FORCES, GERMANY

UNIT	STRENGTH	
GSFG TROOPS		
Headquarters	2,400	
Artillery Division	4,400	
Missile Brigade SS–1	1,350	
Engineer Regiment	1,500	
Amphibious Engineer Regiment	900	
Signal Regiments (5)	4,000	
Guard Battalions (5)	1,900	
Service Elements	39,400	
TOTAL		52,550
ARMY LEVEL GROUND TROOPS (6 Armies)		
Motorized Rifle Divisions (10)	92,700	
Tank Divisions (10)	77,900	
Mixed Artillery Brigades (3)	4,100	
Antitank Artillery Regiments (4)	3,800	
SS–1 Missile Brigades (6)	8,100	
SAM Regiments (6)	6,000	
Heavy Tank-Assault Gun Units (2)	2,000	
Ponton Bridge Regiments (6)	5,400	
Amphibious Engr. Battalions (4)	1,700	
Engr. Construction Battalions (4)	1,400	
Signal Regiments (6)	4,800	
Chemical Battalions (6)	3,900	
Motor Transport Bns (6)	1,600	
Army Headquarters (6) and Service Support Elements	24,300	
TOTAL		237,700
TACTICAL AVIATION (24th TAA)		35,000
TOTAL GSFG PERSONNEL STRENGTH		325,250

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Table 3

ESTIMATED NUMBERS [a] AND DEPLOYMENT OF SOVIET GROUND DIVISIONS AS OF OCTOBER 1963

AREA	MOTORIZED RIFLE			TANK			AIRBORNE		TOTAL
	NUMBER	COMBAT STRENGTH [b]	REDUCED STRENGTH [c]	NUMBER	COMBAT STRENGTH [b]	REDUCED STRENGTH [c]	NUMBER	COMBAT STRENGTH [b]	
East Germany	10	10	0	10	10	0	0	0	20
Poland	0	0	0	2	2	0	0	0	2
Hungary	2	2	0	2	2	0	0	0	4
Western USSR	25	12	13	15	9	6	3	3	43
Southwestern USSR	8	3	5	5	4	1	0	0	13
Northwestern USSR	6	3	3	1	0	1	1	1	8
Southern USSR	18	4	14	4	2	2	2	2	24
Central USSR	9	0	9	0	0	0	0	0	9
Far Eastern USSR	9	3	6	6	2	4	1	1	16
	87	37	50	45	31	14	7	7	[a] 139

[a] The actual number of divisions in Soviet ground forces almost certainly falls somewhere in the range of 110–140. The 139-division figure used herein is no more likely than any other in that range, but is the result of the only analytical approach which permits a detailed breakdown of divisions by location, type, and strength category.

[b] Includes Category I divisions manned at 85 percent or more of authorized strength. These figures represent the highest probable number of divisions in this Category, consistent with our estimate that the actual number is probably somewhere in the range of 60–75. The figures therefore probably include some but not all Category II divisions, manned at 60–70 percent of authorized strength.

[c] Includes Category III divisions manned at 25 percent or less of authorized strength, and such Category II divisions as are not included under "combat strength."

Table 4

ESTIMATED STRENGTH OF EAST EUROPEAN SATELLITE GROUND FORCES AS OF OCTOBER 1963

	STRENGTHS			DIVISIONS [a]				
	TOTAL	IN DIVISIONS	OTHER UNITS [b]	TOTAL	RIFLE	MTZ. RIFLE OR MECH. MECZ	TANK	AIRBORNE
East Germany	90,000	53,000	37,000	6	0	4	2	0
Poland	225,000	121,500	103,500	15	0	10	4	1
Bulgaria	125,000	72,000	53,000	10	0	7	3	0
Czechoslovakia	200,000	118,000	82,000	14	0	12	2	0
Hungary	100,000	37,500	62,500	5	0	4	1	0
Rumania	200,000	103,500	96,500	12	5	6	1	0
TOTALS	940,000	504,500	434,500	62	5	43	13	1

[a] Peacetime strength of Satellite divisions is estimated to range from 60 to 90 percent of wartime strength except for the East German divisions which are at 95 percent strength and the Polish airborne division which is probably under 50 percent.

[b] Includes all nondivisional combat and service support units, home air defense forces, and command and general support elements.

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Table 5

ESTIMATED STRENGTH OF SOVIET TACTICAL AIRCRAFT BY LOCATION AND TYPE AS OF OCTOBER 1963

	FAGOT	FRESCO A, B, C	FRESCO D, E	FARMER	FLASHLIGHT A	FISHBED C, E	FISHBED D	FITTER	FLASHLIGHT D	FIREBAR A	BEAGLE	TOTALS (ROUNDED)
East Germany	25	175	40	85	25	100	110	125	10	30	140	860
Poland	10	70	25	35	..	60	25	35	40	..	20	320
Hungary	..	35	10	35	..	85	35	25	..	..	65	290
Baltic	20	30	10	10	10	20	10	35	..	..	90	240
Belorussia	..	130	20	10	..	30	..	..	..	..	30	220
Carpathian	45	200	..	10	..	..	..	45	20	10	65	400
Moscow	..	10	..	20	..	30	..	..	20	..	..	80
Leningrad	..	95	..	..	..	..	..	..	..	..	35	130
Kiev	..	65	..	..	..	..	..	..	..	..	..	65
Odessa	10	90	..	30	20	..	..	10	20	..	20	200
Trans Caucasus	..	25	10	40	..	20	..	..	..	10	35	140
Turkestan	70	70	..	20	..	..	..	..	..	..	20	180
Far East	..	165	35	..	..	..	..	10	..	..	70	280
TOTALS BY TYPE (Rounded)	180	1,160	150	300	50	340	180	280	110	50	590	3,400

Table 6

ESTIMATED STRENGTH OF EAST EUROPEAN SATELLITE AIRCRAFT BY TYPE AS OF 1 OCTOBER 1963

	FAGOT	FRESCO A, B, C	FRESCO D, E	FARMER	FLASHLIGHT A	FISHBED C, E	FISHBED D	FLASHLIGHT D	BEAGLE	TOTALS BY COUNTRY (ROUNDED)
Albania	25	20	20	5	..	..	..	..	..	70
Bulgaria	35	170	30	100	..	20	..*	..	20	380
Czechoslovakia	75	185	95	150	40	20	..*	..	50	620
East Germany	..	240	50	40	..	35	..*	..	..	360
Hungary	..	35	35	10	..	60	..	..	..	140
Poland	220	190	160	60	..	20	..*	..	70	720
Polish Navy	25	35	10	..	..	..	..	5	10	90
Rumania	110	80	10	35	..	40	..	..	15	290
TOTALS BY TYPE (Rounded)	490	960	410	400	40	200	..	5	160	2,700

* Although FISHBED D has not been firmly identified in these countries, we believe that the aircraft is now entering inventory.

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Table 7

ESTIMATED NUMBERS OF SOVIET AND SATELLITE TACTICAL AIRCRAFT, OCTOBER 1963 TO MID-1969 [a]

	OCTOBER 1963	MID-1964	MID-1965	MID-1966	MID-1967	MID-1968	MID-1969
Soviet							
Old Models [b] [e]	2,400	1,800–1,700	1,200–1,000	800– 600	400– 200	150–0	0
Current Models [c]	1,000	1,200–1,600	1,500–2,000	1,700–2,200	1,800–2,400	1,800–2,400	1,700–2,200
Future Model [d]	0	0	0	0	0– 100	50– 200	100– 400
TOTAL [e]	3,400	3,000–3,300	2,700–3,000	2,500–2,800	2,200–2,700	2,000–2,600	1,800–2,600
Satellite							
Old Models [b]	2,500	2,100–2,000	1,700–1,500	1,400–1,200	1,100– 900	700– 600	500– 400
Current Models [d]	200	400– 600	700–1,000	1,000–1,300	1,300–1,600	1,600–1,900	1,700–2,000
TOTAL	2,700	2,500–2,600	2,400–2,500	2,400–2,500	2,400–2,500	2,300–2,500	2,200–2,400

[a] The Soviet aircraft shown in this table include only those assigned to Tactical Aviation. For additional aircraft which are assigned to air defense of the USSR, see Memorandum to Holders of NIE 11-3-62. The primary mission of the Satellite aircraft is air defense, but they could also be used for tactical missions.

[b] Includes FAGOT, FRESCO, FARMER, FLASHLIGHT A, and BEAGLE, aircraft which phased out of production prior to 1960.

[c] Includes FLASHLIGHT D, FISHBED, FITTER, FIREBAR A, aircraft which were in production during 1963. FISHPOT may enter Satellite forces by mid-1966.

[d] An advanced design tactical fighter estimated to become operational as early as mid-1967.

[e] As the current models have been phased into operational units, the older models have been retained in considerably greater numbers than was previously anticipated. The future numbers reflect our estimate of probable retirement of older models due to prolonged time in service. While it seems likely that large numbers will be retired in the next few years, recent trends suggest that these older models may be retained at higher levels than shown. Their operational status remains questionable.

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Table 8

ESTIMATED SOVIET NAVAL STRENGTH AND DEPLOYMENT OCTOBER 1963 TO MID-1969 [a] [b]

TYPE OF SHIP	BY FLEETS, OCTOBER 1963				TOTAL OCTOBER 1963	MID-1964	MID-1965	MID-1967	MID-1969
	NORTH	BALTIC	BLACK SEA	PACIFIC					
FIRST LINE SUBMARINES									
Nuclear [c]									
Ballistic Missile (H or successor)	11	..	..	..	11	13–15	15–20	19–28	23–36
Cruise Missile (E)	..	..	..	6	6	8– 9	10–12	14–20	18–28
Torpedo Attack (N or successor)	11	..	..	..	11	15–13	19–15	27–19	35–23
TOTALS	22	..	..	6	28	36–37	44–47	60–67	76–87
Diesel									
Ballistic Missile (G and Z-con.) [d]	28	..	..	10	38	39–42	41–45	41–45	41–45
Cruise Missile (W–conv.) [e]	7	1	1	3	12	12	12	12	12
(J) [f]	1	..	..	..	1	3– 4	5– 8	8–18	8–18
LR Torpedo (Z, F)	29	8	..	13	50	53	54	54	46
LR Torpedo (W, R) [g]	86	35	29	44	194	194	194	194	139
MR Torpedo (Q)	..	26	4	..	30	30	30	30	22
SR Torpedo (M)	..	12	9	13	34	24	9	..	..
SECOND LINE SUBMARINES									
All Types	..	3	3	6	12	22	37	24	73
TOTALS	173	85	46	95	399	413–418	426–436	423–444	417–442
FIRST LINE SURFACE SHIPS									
Cruisers	3	4	[h] 5	4	16	16	16	16	15
Missile Destroyer	5	2	6	3	16	20–21	22–25	26–33	30–41
Destroyer	25	18	15	27	85	84	82	82	82
Destroyer Escort	20	13	10	19	62	58	58	58	58
SECOND LINE SURFACE SHIPS									
Cruisers	..	1	1	2	4	1	1	..	..
Destroyers	..	..	1	..	1	..	..	..	..

[a] First line submarines are those of modern construction. The second line category lists units from 14 to 20 years old which, by virtue of age and design are considered useful only for training or perhaps coastal defense. Some of the second line ships will probably be retired from service earlier than on an age criterion.

[b] Surface ships which are at least 20 years old are carried in a second line status until there is evidence of their removal from the fleet or until they are finally considered removed (in the absence of contrary evidence) when 25 years old.

[c] Totals for future years include submarines of follow-on classes which may be built during the period. An annual construction rate of 8–10 nuclear-powered submarines of all types has been estimated.

[d] We have previously estimated that construction of G class submarines would terminate by the end of 1962. However, the possibility exists that this program may still be active. While we are unable to predict the future numbers of this class with certainty, our estimate reflects both the past evidence and the possibility that construction will continue for about another year. The size of the G class construction program will probably be influenced by Soviet decisions regarding construction of other classes of missile submarines.

[e] Includes 6 LONG BIN, 5 TWIN CYLINDER, and 1 SINGLE CYLINDER. It is estimated that the W–Conversion program has probably been terminated.

[f] Recently sighted exiting the Baltic, evaluated as probably new construction, diesel-powered SSG. Future estimates reflect construction capabilities and trends rather than a firm estimate of numbers programmed.

[g] Includes 4 W class (CANVAS BAG) radar picket submarines. Seventeen R class are in the Northern Fleet and three in the Black Sea.

[h] Includes 2 units fitted for missile Research and Development.

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Table 9

ESTIMATED STRENGTH AND DISPOSITION OF SOVIET NAVAL AVIATION AS OF OCTOBER 1963 *

AIRCRAFT	NORTHERN FLEET AIR FORCE, WHITE SEA AREA	BALTIC FLEET AIR FORCE, BALTIC SEA AREA	BLACK SEA FLEET AIR FORCE, BLACK SEA AREA	PACIFIC FLEET AIR FORCE, FAR EAST AREA	TOTAL
Jet Light Bomber					
BEAGLE	..	35	45	45	125
Jet Medium Bomber					
BADGER	100	60	80	125	365
BLINDER	..	10–20	..	..	10–20
Patrol					
MADGE	20	10	15	30	75
MALLOW	..	..	5	..	5
Helicopter					
HOOK	2	..	..	..	2
HOUND	25	25	10	35	95

* For future years, we estimate a gradual phase-out (about 10 percent per year) of older aircraft such as the BEAGLE, BADGER, and MADGE, with a corresponding increase in newer models such as BLINDER, MALLOW, and MAIL. Unless strength of Naval Aviation is increased through transfer of long-range bombers such as BEAR to naval subordination, we expect the total number of aircraft to remain fairly stable.

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ANNEX B

TECHNICAL CHARACTERISTICS OF SOVIET GENERAL PURPOSE MISSILES, AIRCRAFT, AND SUBMARINES

TABLES

Table 1: ESTIMATED CHARACTERISTICS OF SOVIET TACTICAL MISSILES AND ROCKETS

Table 2: ESTIMATED CHARACTERISTICS OF SELECTED SOVIET NAVAL MISSILE SYSTEMS

Table 3: ESTIMATED CLOSE SUPPORT PERFORMANCE OF SOVIET TACTICAL AIRCRAFT CALCULATED UNDER SPECIFIED ASSUMPTIONS

Table 4: ESTIMATED PERFORMANCE OF SOVIET TRANSPORT AIRCRAFT

Table 5: ESTIMATED PERFORMANCE OF SOVIET HELICOPTERS

Table 6: ESTIMATED CHARACTERISTICS AND PERFORMANCE OF SOVIET SUBMARINES

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ESTIMATED CHARACTERISTICS OF SOVIET TACTICAL MISSILES AND ROCKETS

	SS-1A SCUNNER	SS-1B SCUD A	SS-1C SCUD B	SS-2 SIBLING	SSC-1 SHADDOCK	FROG-1	FROG-2	FROG-3	FROG-4
Maximum range	150 n.m.	150 n.m. (CW or HE); 80 n.m. (nuc.)	150 n.m.	350 n.m.	300 n.m.	15 n.m.	11 n.m.	13 n.m.	26 n.m.
Warhead (lbs)*	1,700, HE	1,500 HE; 1,900–2,400 Nuc.	1,800–2,000 HE, Nuc.	2,000–2,400 HE, Nuc.	1,000–2,000 HE, Nuc.	3,000 HE, Nuc.	1,300 HE, Nuc.	1,300 HE, Nuc.	700, HE
Configuration	single stage ballistic, essentially a V–2	single stage ballistic; mounted on heavy tank chassis	single stage ballistic; mounted on heavy tank chassis	single stage ballistic, towed launcher	cruise; transported in a launch tube on a wheeled vehicle	mounted on a heavy tank chassis	mounted on a light tank chassis		
Trajectory	ballistic	ballistic	ballistic	ballistic	aerodynamic, low altitude, low supersonic	free flight			
Propulsion	lox-alcohol	stor. liquid	stor. liquid	nonstor. liquid	turbojet	solid fuel			
Guidance	radio-inertial	all-inertial	all-inertial	radio-inertial	unknown, poss. radio link	none			
Accuracy	0.75 n.m. CEP	0.5 n.m. CEP	0.5 n.m. CEP	0.75 n.m. CEP	0.5 n.m. CEP at 150 n.m. range	400–800 yds CEP	300–600 yds CEP	500–1,000 yds CEP	650–1,650 yds CEP
Overall Reliability	60–70%	60–70%	60–70%	60–70%	60–70%	?	?	?	?
Refire Time	4–6 hours	3–4 hours	3–4 hours	4–6 hours	Unknown	15–30 minutes			
Reaction Time	2–4 hours after arrival at presurveyed site. Can be held at X–1 hour for extended periods and at X–15 minutes for limited periods.	2 hours after arrival at presurveyed site. Can be held at X–10 minutes for extended periods.	2 hours after arrival at presurveyed site. Can be held at X–10 minutes for extended periods.	2–4 hours after arrival at presurveyed site. Can be held at X–1 hour for extended periods and at X–15 mins. for limited periods.	1 hour after arrival at presurveyed site.	From arrival at presurveyed site, 15–30 minutes			
Mobility	Has cross-country mobility in unfueled condition.	Some cross-country mobility in fueled condition.	Some cross-country mobility in fueled condition.	Mobile on good roads, limited cross-country mobility.	Good on highways, limited on secondary roads.	Good cross-country mobility			

* While all Soviet tactical missiles could carry CW Warheads, we have good technical data on the CW capabilities of SCUD, SHADDOCK and FROG—4.

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Table 2

ESTIMATED CHARACTERISTICS OF SELECTED SOVIET NAVAL MISSILE SYSTEMS a*

NAME AND TYPE	SS-N-1 (SSM)	SS-N-2 (SSM)	SS-N-3 (SSM)	SA-N-1 (SAM) b	SSCD-1 c
Range	20–30 n.m. unassisted 130 assisted	13–20 n.m.	300 n.m. (some in this family possibly 450 n.m.)	. .	25–35 n.m
Altitude	1,000–10,000 ft	1,000 ft	1,000–3,000 ft	. .	3,500 ft
Speed	High subsonic	About MACH 1	Low supersonic	. .	MACH 0.9
Warhead d (lbs.) and Type	500 to 2,000 HE or NUC	1,000 to 2,000 HE	1,000 to 2,000 HE or NUC	. .	500–1,500 lbs HE or NUC
CEP	150 ft with terminal homing; about 0.5 n.m. without homing at less than 30 n.m. to about 5 n.m. at max. range	Approx. 150 ft	150 ft with terminal homing against ships; 2 n.m. against land targets	. .	150 ft
Guidance	Programmed with radio command override and terminal homing	Preset autopilot with active terminal homing	Intertial with active terminal homing		Beam rider with semiactive homing
Propulsion	Turbojet with probable solid RATO boost	Storable liquid fuel rocket probably with RATO boost	Turbojet with RATO boost		Turbojet with RATO boost

See footnotes at end of table.

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Number of Launchers and Missiles per Unit	KILDIN-single launcher aft (9 missiles per launcher); KRUPNYY-single launcher fore and aft (10 missiles per launcher)	4 launchers per OSA (1 missile per launcher) 2 launchers per KOMAR (1 missile per launcher)	SINGLE CYLINDER – W class (SSG); TWIN CYLINDER – W class (SSG) (2 tubes); LONG BIN – W class (SSG) (4 tubes); 3 – TWINS on E class (SSGN) (6 tubes); J class (SSG) (possibly 4 tubes); (all submarines carry 1 missile per tube); KYNDA Quad launchers fore and aft (4 missiles per launcher)	KYNDA – 1 dual launcher, forward; (4 missiles per launcher); KASHIN – 2 dual launchers, forward and aft; (4 missiles per launcher); KOTLIN Conversion, 1 launcher aft (4 missiles per launcher)	2 launchers per site (4 missiles per launcher)
Reaction Time.....	1 min alerted 5 min routine	5 min alerted and routine	5–10 minutes for submarines		15 min alerted
Refire Time.....	5–10 min	None	No reload for submarines, but KYNDA may have reload capability of up to 4 missiles per mount		10 min

[a] Characteristics of naval ballistic and air-to-surface missiles are found in NIE 11-8-63, Soviet Capabilities for Strategic Attack (Top Secret, Restricted Data) limited distribution, 18 Oct 63.

[b] SA-N-1 has been observed on KYNDA, KASHIN and coverted KOTLIN class destroyers. We have insufficient evidence to estimate characteristics and performance.

[c] AS-1 KENNEL modified for coast defense.

[d] CW warheads may be available for naval cruise missiles.

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Table 3

ESTIMATED CLOSE SUPPORT PERFORMANCE OF SOVIET TACTICAL AIRCRAFT CALCULATED UNDER SPECIFIED ASSUMPTIONS*

AIRCRAFT	FUEL LOAD (LBS)	ARMAMENT	RADIUS (N.M.)		
			HI-LO-HI	LO-LO-HI	LO-LO-LO
MIG–15..... FAGOT	2,500 (Internal)	2x550 lb bombs 1x37 mm gun 2x23 mm guns	100	55	45
	3,200 (1 External Tank)	1x550 lb bomb 1x37 mm gun 2x23 mm guns	230	100	70
	3,900 (2 External Tanks)	1x37 mm gun 2x23 mm guns	360	140	90
MIG–17..... FRESCO	2,500 (Internal)	2x550 lb bombs 1x37 mm gun 2x23 mm guns	75	55	45
	3,200 (1 External Tank)	1x550 lb bomb 1x37 mm gun 2x23 mm guns	200	95	70
	3,900 (2 External Tanks)	1x37 mm gun 2x23 mm guns	330	135	90
MIG–19..... FARMER	3,950 (Internal)	2x550 lb bombs 2x30 mm guns	160	80	50
	5,050 (1 External Tank)	1x550 lb bomb 2x30 mm guns	285	140	80
	6,150 (2 External Tanks)	2x55 mm rkt pods 2x30 mm guns	415	210	110

* See note at end of table.

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Table 3 (*Continued*)

AIRCRAFT	FUEL LOAD (LBS)	ARMAMENT	RADIUS (N.M.)		
			HI-LO HI	LO-LO-HI	LO-LO-LO
MIG-21..... FISHBED C	4,600 (Internal)	2x550 lb bombs 2x30 mm guns	325	145	95
	4,600 (Internal)	1x1,100 lb bomb 2x30 mm guns	325	145	95
	5,500 (1 External Tank)	2x550 lb bombs 2x30 mm guns	425	185	120
	5,500 (1 External Tank)	2x55 mm rkt pods 2x30 mm guns	440	190	120
FITTER.....	7,000 (Internal)	2x30 mm guns 2x1,100 lb bombs	275	185	100
	9,100 (2 External Tanks)	2x30 mm guns 2x210 mm rkts	500	275	140
	9,100 (2 External Tanks)	2x30 mm guns 2x550 lb bombs	440	270	140
FIREBAR.....	10,000 (2 External Tanks)	1x30 mm gun 3,300 lb bombs	395	255	200
FLASHLIGHT D..	7,100 (Internal)	Reconnaissance Equipment	200	..	90
BEAGLE.....	14,600	4,400 lb bombs	490	..	240
	14,600 (Internal)	6,600 lb bombs	460	..	225

NOTE:

Mission allowances are:

(a) Take-off (2 minutes at normal rated power).

(b) Outbound leg:

High altitude:

Climb on course at military power.

Cruise at speed and altitude for maximum range.

Descent to sea level (no distance credit).

Low altitude: (SL)

Fly at military power, or, if applicable, pertinent limited speed.

(c) Combat for five minutes at military power at sea level (no distance credit).

(d) Return leg:

High altitude:

Climb on course at military power.

Cruise to base at speed and altitude for maximum range.

Low altitude:

Fly at military power or, if applicable, at structural limit speed.

(e) Range free reserve allowance of 10 minutes maximum endurance at sea level.

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Table 4

ESTIMATED PERFORMANCE OF SOVIET TRANSPORT AIRCRAFT
(Calculated in accordance with US MIL C-5011A, Basic Mission)

AIRCRAFT	OPERATIONAL DATE	SOVIET DESIGNATION	POWER PLANT NR., TYPE	CARGO (LBS.) [a]	PASSENGER/ PARATROOP CAPACITY [a]	COMBAT RADIUS/ RANGE (NM)	AVERAGE CRUISE SPEED (KTS.)	INITIAL CRUISE ALTITUDE (FT.)	SERVICE CEILING (FT.) [e]
CAB [b]	1937	LI-2	2 Piston	3,300	25/20	530/1,215	130	13,000	16,600
COLT	1949	AN-2	1 Piston	1,650	10/12	450/945	90	5,000	16,400
BULL	1954	TU-4	4 Piston	23,000	33/42	1,800/3,320	200	10,000	39,500
CRATE [b]	1954	IL-14	2 Piston	4,750	24/21	720/1,600	165	11,500	24,400
CRATE [b c]	1956	IL-14M	2 Piston	6,350	36/21	720/1,600	165	11,500	24,400
CAMEL A	1957	TU-104A	2 Turbojet	20,500	70/70	960/2,000	450	34,500	46,900
CAMEL B	1957	TU-104B	2 Turbojet	22,500	74–100/90	920/1,900	455	33,300	46,100
COOT	1958	IL-18	4 Turboprop	23,000	84–110/90–100	1,550/2,600	340	26,800	39,000
CAMP [b]	1959	AN-8	2 Turboprop	19,000	–/60	740/1,400	270	24,400	38,200
CAT [b]	1959	AN-10	4 Turboprop	20,600	84–100/91	710/1,450	335	30,800	39,700
CLEAT	1959	TU-114	4 Turboprop	29,000	170–220/–	2,700/5,400	410	32,200	40,800
CUB [b]	1959	AN-12	4 Turboprop	21,000	–/91	710/1,450	335	30,800	39,800
COKE	1961	AN-24	2 Turboprop	6,730	32–42/40	530/1,000	245	25,000	32,000
COOKPOT	1961	TU-124	2 Turbofan	10,000	44/40	?/4,000	450	32,500	?
CLASSIC [d]	1964	IL-62	4 Turbofan	30,000	182/–	?/4,000	485	?	?

[a] Performance shown is for cargo load; Passenger/Paratroop Capacity is shown as alternate load, but performance would differ for this load.

[b] Aircraft most suited for paratroop operations.

[c] COACH/IL-12 is not shown since performance is similar to CRATE.

[d] 1962 is year of first flight.

[e] Calculated at combat weight.

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Table 5

ESTIMATED PERFORMANCE OF SOVIET HELICOPTERS [a]

CHARACTERISTIC	HARE	HOUND	HORSE	HEN	HOG	HOOK	HARP [b]	HIP [b]	HARKE [b]	HOOP [b]	HOPLITE [b]
Operational Date	1951	1953	1958	1958	1959	1960	?	?	?	?	?
Soviet Designation	Mi-1	Mi-4	Yak-24	Ka-15	Ka-18	Mi-6	Ka-20 (?)	Mi-8	Mi-10(?)	Ka-22	Mi-2
Power Plant											
Number	1	1	2	1	1	2	2	2	2	2	2
Type	Piston	Piston	Piston	Piston	Piston	Turbine	Turbine	Turbine	Turbine	Turbine	Turbine
Radius/Range (n.m.)	85/210	120/240	65/135	120/260	110/240	120/250	100/250	150/350	100/200	200/400	100/250
Nr. of Crew	1	3	4	1	1	5	2	3	5	4	2
Payload (plus crew)											
Troops	3	11–15	40–55	1	3	80 [c]	3	24	70–120	70	6–8
Or Cargo (lbs) (normal)	350	2,640	8,800	200	350	20,000	1,000	4,400	20,000	20,000	1,500
Or Cargo (lbs) (max)	600	3,500	12,000	400	550	28,600	2,000	?	33,000	25,000	?
Max speed (kts at sea level)	100	110	110	80	85	175	90	130	100	200	120
Cruise speed at 5,000 ft. (kts)	75	75	85	65	65	110	70	90	80	160	80
Service Ceiling (ft)	16,400	18,000	13,500	9,800	11,500	16,000	12,000	20,000	7,500	15,000	17,000

[a] Performance quoted is for normal cargo load; alternate loads are shown to indicate capacity, but performance would differ from that shown.

[b] Seen only in prototype version; operational date undetermined.

[c] There is evidence that a passenger version may have 120 seats.

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Table 6

ESTIMATED CHARACTERISTICS AND PERFORMANCE OF SOVIET SUBMARINES

TYPE/CLASS	DIMENSIONS			DEPTH		SPEED			ARMAMENT		PATROL CAPABILITIES [b] [c]			
	LENGTH/ BEAM (FEET)	DISPLACEMENT (TONS) SURFACED/ SUBMERGED		MAXIMUM OPERATING DEPTH (FEET)	COLLAPSE DEPTH	SURFACED	SNORKEL	SUBMERGED SPEED/ ENDURANCE (N.M.)	TORPEDO [a]	MISSILES	DAYS ON STATION	RADIUS (N.M.)	PATROL DURATION (DAYS)	ENDURANCE FACTORS
Ballistic Missile														
Nuclear-Power H	365/32	5,000	5,900	800	1,270	Max 20	..	20/–	20	3	20	5,300	60	Sea
						Cruise 12–14	..	12–14/–			10	6,600		
											1	7,800		
Diesel-Power G	320/28	2,350	2,800	900	1,440	Max 17.5	10.5	16/12	24	3	20	4,400	60	Sea
						Cruise 8.3	6.0	2/100			10	4,700	53	Fuel
											1	4,850	46	Fuel
Z-Conversion	295/27	1,950	2,400	735	1,170	Max 18.4	7.0	15/15	24	2	20	4,300	60	Sea
						Cruise 8.5	7.0	2.5/125			10	5,450	60	Sea
											1	6,150	58	Fuel
Cruise Missile														
Nuclear-Power E	370/32	5,100	6,000	800	1,270	Max 20	..	18–20/–	20	6	20	5,300	60	Sea
						Cruise 12–14	..	12–14/–			10	6,600		
											1	7,800		
Diesel Power														
W-Conversion [d]	249/21	1,055	1,355	675	1,080	Max 18.5	6.8	13.5/13.5	12	1–2				
						Cruise 10	6.8	2/100			20	1,800	40	Sea
W-Conversion (LONG BIN)	275/21	1,160	1,500	675	1,080	Max 18	5.5	12/12	10	4	10	2,600	39	Fuel
						Cruise 10	5.5	2/100			1	3,000	34	Fuel
"J"	280/33	– – –

TYPE/CLASS	DIMENSIONS			DEPTH		SPEED			ARMAMENT		PATROL CAPABILITIES [b] [c]			
	LENGTH/ BEAM (FEET)	DISPLACEMENT (TONS) SURFACED/ SUBMERGED		MAXIMUM OPERATING DEPTH (FEET)	COLLAPSE DEPTH	SURFACED	SNORKEL	SUBMERGED SPEED/ ENDURANCE (N.M.)	TORPEDO [a]	MISSILES	DAYS ON STATION	RADIUS (N.M.)	PATROL DURATION (DAYS)	ENDURANCE FACTORS
Diesel F	300/27	1,950	2,400	800	1,290	Max 18.4	9.5	17.5/13	24	..	20	4,400	60	Sea
						Cruise 8.5	7.0	2.5/125			10	5,400	60	Sea
											1	6,150	58	Fuel
Z	295/27	1,950	2,400	735	1,170	Max 18.4	7.0	15/15	24	..	20	4,300	60	Sea
						Cruise 8.5	7.0	2.3/125			10	5,450	60	Sea
											1	6,150	58	Fuel
R	249/21	1,055	1,355	675	1,080	Max 18.5	9.0	15.5/12	12	..	20	1,850	40	Sea
						Cruise 10.0	7.0	2/100			10	2,800	40	Fuel
											1	3,300	37	Fuel
W	249/21	1,055	1,355	675	1,080	Max 18.5	6.8	13.5/13.5	12	..	20	1,800	40	Sea
						Cruise 10	6.8	2/100			10	2,600	39	Fuel
											1	3,000	34	Fuel
Q	185/18	420	510	450	725	Max 17.6	8.0	16/16 [e]	8	..	10	850	18	Fuel
						Cruise 12	8.0	2.5/125 [e]			1	1,150	12	Fuel

See footnotes on next page.

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[a] Torpedo capacities are the maximum numbers which can be carried. A combination of torpedoes/mines could be carried.

[b] The time on station and radius (distance to station) have been computed on the basis of various operational factors, principally those relating to "Sea endurance" and "Fuel endurance."

"Sea endurance" is defined as the total length of time that a submarine can remain at sea without replenishment under combat conditions and is estimated on the basis of personnel endurance, general habitability, food, spare parts, and consumables other than fuel. The H, E, and N classes of nuclear propelled submarines are estimated to have a "Sea endurance" of .60 days. The G, F, Z, and Z-Con. classes of diesel powered submarines are estimated to have a "Sea endurance" of 60 days, while the W, W-Con., and R classes are estimated to have a "Sea endurance" of 40 days.

"Fuel endurance" is defined as the total length of time that a submarine can remain on patrol under combat operational conditions without refueling. For diesel powered submarines, it is computed on the basis of fuel consumption resulting from an arbitrarily assumed average transit routine of 8 hours surface, 8 hours snorkel, and 8 hours submerged operations daily; fuel consumption on station is computed on the basis of a few hours of snorkel operations daily, sufficient only to maintain the state of charge of the main storage battery for submerged operation the remainder of the day.

The endurance and maximum operating radius of nuclear-powered submarines are limited by factors other than fuel. For the purposes of this table it has been arbitrarily assumed that Soviet nuclear-powered submarines would transit to station using the following criteria:

Speed of 7 kts in area where ASW opposition is anticipated (assumed to be about 1/3 of the time).

Speed of 13 kts in area where ASW opposition is not expected (about 2/3 of the transit time).

[c] Selected distances from Soviet ports:

From-To	Iceland	North West British Isles	Halifax	Bermuda or New York	Norfolk	Gibraltar	Panama
Kola Inlet	1,500	1,600	3,350	3,950	4,000	2,950	5,600

From-To	Seattle	Honolulu	Manila	Los Angeles	San Francisco	Singapore	Panama
Petropavlovsk	3,200	2,750	3,100	3,600	3,400	4,200	6,500
Vladivostok	4,400	3,700	1,900	5,000	4,550	3,000	7,750

[d] Three different conversions have been observed on "W" class cruise missile launching submarines, enabling 6 to carry 4 missiles each, 5 to carry 2 each and 1 to carry 1 missile.

[e] About 10 units of the "Q" class are believed to have been modified for closed-cycle operations of their diesels while submerged with liquid oxygen employed as the oxidizing agent. These modified units have an estimated submerged endurance of 75 n.m. at a maximum speed of 16 kts or an endurance of 160 n.m. at a cruising speed of 10 kts. This endurance is in addition to that listed on the above table.

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ANNEX C

ORGANIZATION OF LARGE SOVIET THEATER FORCE UNITS

TABLES

Table 1: ESTIMATED WARTIME TOE OF THE SOVIET MOTORIZED RIFLE DIVISION

Table 2: ESTIMATED WARTIME TOE OF THE SOVIET TANK DIVISION

Table 3: ILLUSTRATIVE COMPOSITION OF A WARTIME SOVIET COMBINED ARMS ARMY

Table 4: ILLUSTRATIVE COMPOSITION OF A WARTIME SOVIET TANK ARMY

Table 5: ILLUSTRATIVE COMPOSITION OF A WARTIME SOVIET *FRONT*

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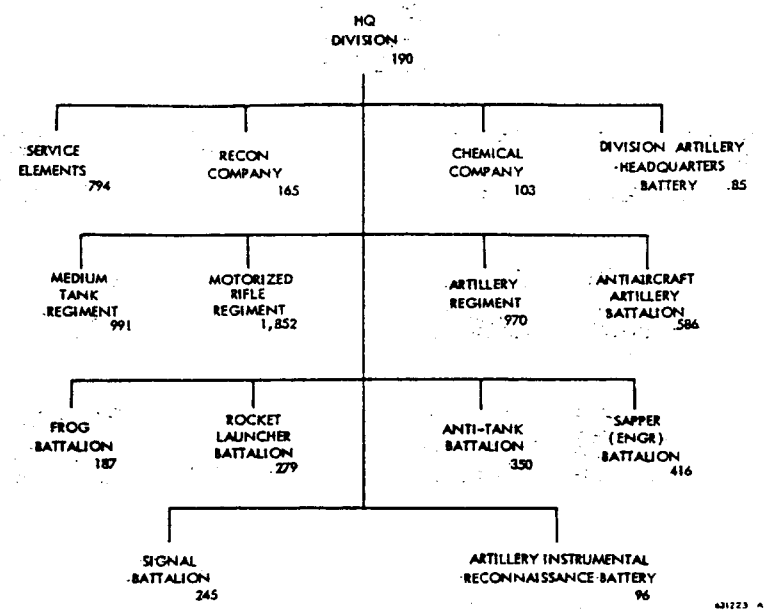
ANNEX C
TABLE 1

ESTIMATED WARTIME TOE
OF THE
SOVIET MOTORIZED RIFLE DIVISION



TOTAL PERSONNEL AUTHORIZED:	11,013

MAJOR ITEMS OF EQUIPMENT AUTHORIZED:

Armored Combat Vehicles	
Medium Tank	190
Light Tank	24
Assault Gun	10
Field Artillery	
152mm Howitzer	18
122mm Howitzer	18
160mm Mortar	18
120mm Mortar	18
82mm Mortar	27
Multiple RKT Launchers	20
FROG Launchers	2
Anti Tank Weapons	
85/100mm AT Field gun	18
85mm AT Gun APAT	18
57mm AT Gun APAT	18
AT GM Launchers	45
AAA Guns	
57 AA Gun, towed	30
57 AA Gun, SP	4
Armored Personnel Carriers	
BTR - 40	73
BTR 152/60p	229
BTR 50p	41
Armored Scout Car, amphibian	40
Other Vehicles	1065
Light Aircraft	5

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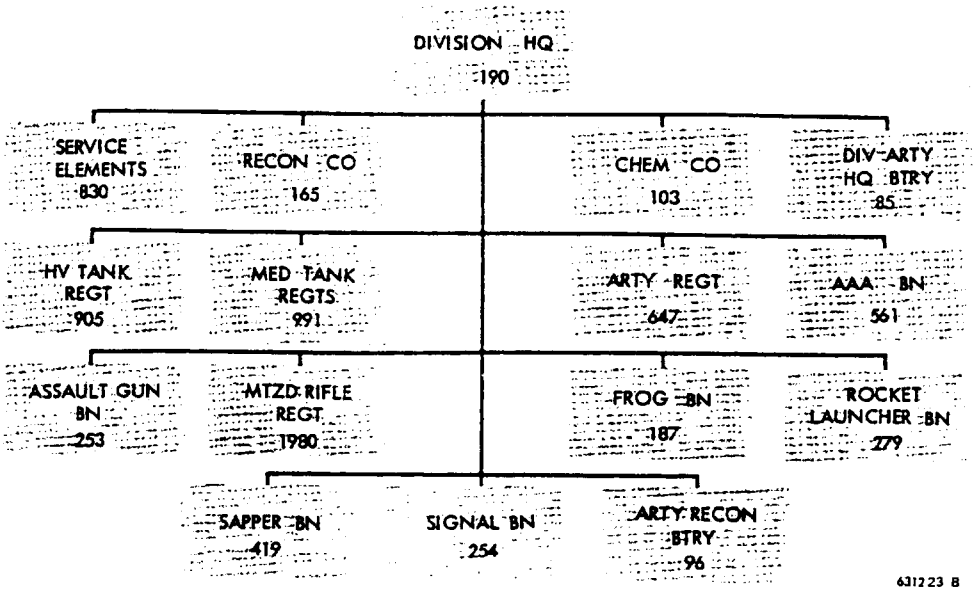
ANNEX C
TABLE 2

ESTIMATED WARTIME TOE OF THE SOVIET TANK DIVISION



TOTAL PERSONNEL AUTHORIZED:	8,936
MAJOR ITEMS OF EQUIPMENT AUTHORIZED:	
Armored Combat Vehicles	
Heavy Tank	95
Medium Tank	229
Light Tank	24
Assault Guns	51
Field Artillery	
122mm Howitzer	36
120mm Mortar	6
82mm Mortar	9
Multiple Rocket Launcher	14
FROG Launcher	2
Anti Tank Weapons	
85/100mm AT - Field gun	6
85mm AT gun, APAT	6
57mm AT gun, APAT	24
AT GM Launcher	27
AAA Guns	
57 AA gun, towed	24
57 AA gun, SP	20
Armored Personnel Carriers	
BTR - 40	34
BTR - 152	9
BTR - 50p/60p	261
Armored Scout Car, amphibious	48
Other Vehicles	1717
Light Aircraft	5

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Table 3

ILLUSTRATIVE COMPOSITION OF A WARTIME SOVIET COMBINED ARMS ARMY

This table is based primarily on our information concerning the current composition of the Soviet combined arms armies in East Germany. The table also reflects judgments derived from Soviet documents as to likely wartime compositions of combined arms armies, which could vary considerably depending upon the mission of the army, the terrain in the area of operations and other factors.

Motorized Rifle Division (4)		44,000
Tank Division (1)		9,000
Army Combat Support Units:		
Artillery and SS Missiles		5,100
Artillery Brigade	2,000	
SCUD Brigade	1,000	
Antitank Artillery Regiment	1,100	
Heavy Tank and Assault Gun Regiment	1,000	
Air Defense		
SAM Regiment		1,000
Engineers		3,100
Engineer Regiment	1,800	
Ponton Bridge Regiment	900	
Assault Crossing Battalion	400	
Signal Units		1,300
Signal Regiment	800	
Radio Relay Battalion	200	
Line Construction Battalion	300	
Chemical Battalion		600
Intelligence Battalion		300
Headquarters and Service Elements		12,000
Total CAA Strength		76,400

Table 4

ILLUSTRATIVE COMPOSITION OF A WARTIME SOVIET TANK ARMY

This table is based primarily on our information concerning the current composition of the Soviet tank armies in East Germany. The table also reflects judgments derived from Soviet documents as to likely wartime compositions of tank armies, which could vary considerably depending upon the mission of the army, the terrain in the area of operation, and other factors.

Tank Division (4)		36,000
Army Combat Support Units:		
Artillery		
SCUD Brigade		1,000
Air Defense		
SAM Regiment		1,000
Engineers		2,900
Engineer Regiment	1,800	
Ponton Bridge Regiment	700	
Assault Crossing Battalion	400	
Signal Units		1,300
Signal Regiment	800	
Radio Relay Battalion	200	
Line Construction Battalion	300	
Chemical Battalion		600
Intelligence Battalion		300
Headquarters and Service Elements		10,000
Total Tank Army		53,100

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Table 5

ILLUSTRATIVE COMPOSITION OF A WARTIME SOVIET *FRONT*

This table is based primarily on our information concerning the Group of Soviet Forces, Germany (GSFG) which is the nearest equivalent to a wartime Soviet *front* currently in existence. However, GSFG is tailored to meet the requirements of its particular mission in East Germany and thus does not correspond in detail to our illustrative *front* composition, which has considerably more ground troops and less tactical air support. Soviet wartime *fronts* would vary widely in composition and strength depending upon the mission, the terrain, and other factors. This table is intended as a rough guide to understanding of Soviet theater force structure rather than as a source of detail.

Combined-Arms Armies (4)		306,000
Tank Armies (2)		108,000
Tactical Air Army		20,000
Front Combat Support Units:		
Artillery and SS Missiles		7,000
Artillery Division	5,000	
SCUD Brigades (2)	2,000	
Air Defense		
SAM Brigade		2,000
Engineers		8,000
Engineer Brigade	3,000	
Ponton Bridge Regiments (2)	2,000	
Assault Crossing Regiment	1,000	
Pipeline Brigade	2,000	
Signal Units		3,000
Signal Regiment	1,000	
Signal Intercept Regiments (2)	1,500	
Radio Relay Battalions (2)	500	
Chemical Brigade		3,000
Intelligence Regiment		1,000
Headquarters and Service Elements		46,000
Total *Front*		504,000

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